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On the Geometridae fauna of Bahçesaray district, together with some morphological and eco-faunistical notes (Van Province, East Turkey) (Lepidoptera)

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Abstract: On the Geometridae fauna of Bahçesaray district, together with some morphological and eco-faunistical notes (Van Province, East Turkey) (Lepidoptera). *Priamus* 14 (2): 76-119, 69 figs. 32 maps.

This paper deals with the Geometridae fauna of Bahçesaray district in Van Province of Turkey. Totally 72 species are listed alphabetically, together with their synonyms, original references, and distributional information as codes. Auto-ecological data to most species are added. Observational information in nature are illustrated. Male genitalia, tympanal organ, and abdominal skin of some species are also given. Totally 32 triad distributional maps are added. Together with the previous contributions, all the species are new to the district. Among them, 25 species are new to Van Province.

Key words: Geometridae, Lepidoptera, genitalia, tympanal organs, auto-ecology, bionomy, Bahçesaray, Van, Turkey.

Pterygota fauna of Bahçesaray district is a private Project of the Cesa, realized by the authors during excursions in 2016. Previous articles on this subject were published only by the authors (Kemal & Koçak, 2016a, Kemal, Koçak & Ecer, 2016, Kemal et al., 2016, Kemal & Koçak, 2016b). In the previous article, the authors published the first comprehensive result on the Noctuidae of Bahçesaray, containing 165 species (Kemal & Koçak, 2016b). In the present paper, Geometridae fauna is under discussion. Totally 97 geometrid species are recorded from the district. These two families are represented in this district by 262 species. Next publications will be about other larger moths, the Micro-lepidoptera, the butterflies and other pterygot groups recorded in the district. The total number of the examined pterygot species will be more than 800.

For the collecting localities and their codes, see the previous paper (Kemal & Koçak, 2016b).

During the field studies, the observations were mostly made by the first author, and photographed. In this manner, resting positions or feeding behaviours of the adults can be recognized. The species of the Geometridae are the second rich group after Noctuidae. During the 2016 excursions of the authors, nearly 2000 specimens were collected, prepared and included in the Cesa collection. Most of the species are nocturnal, however, especially Sterrhinae species can be frequently observed in the evening hours, rarely under the sunshine in the hot days. The figures of the species given below are the nocturnal ones (**Figs. 6-29**).

Morphologically, the male genitalia and the tympanal organs of the following species were prepared and illustrated by the first author (**Figs. 34-69**). The male genitalia are used here for the

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identifications of some difficult species. Some genitalic preparations are illustrated here for the first time, e.g., *Drepanopterula limaria* (**Figs. 37, 52, 53**). Almost all the tympanal images are illustrated here for the first time (**Figs. 48-69**). Their morphological evaluations will be published separately. Pictorial observations on the caterpillar and the pupa of *Chesistege korbi* are mentioned here for the first time (**Figs. 1-5**).

Faunistically, all the species recorded in the district are new to the fauna of Bahçesaray. Besides, 25 species are reported here as new to the fauna of Van Province. These are as follows; *Aplocera columbata*, *Ascotis selenaria*, *Cataclysmes rigata*, *Chesistege korbi*, *Coenoteaphria ablutaria*, *Colotois pennaria*, *Costaconvexa polygrammata*, *Crocallis* (s.str.) *loebeli*, *Drepanopterula limaria*, *Ennomos* (*Deuteronomos*) *fraxineti*, *Ennomos* (*Deuteronomos*) *quercarius*, *Gnopharmia rubraria*, *Gnophos* (*Dicragnophos*) *gorgatus*, *Gnophos* (*Dicragnophos*) *sartatus*, *Hyposcotis* (*Charissa*) *certhiata*, *Hyposcotis* (*Euchrognophos*) *dubitaria*, *Hyposcotis libanotica*, *Larentia clavaria*, *Lithostege palaestinensis*, *Minoa murinata*, *Odontognophos zacharius*, *Perizoma lugdunaria*, *Ramitia kufrana*, *Scotopteryx nebulata*, and *Synopsis sociaria*.

For this publication, triad distributional maps of 32 species are prepared, by using their distributional codes, mentioned in the text (**Maps 1-32**). For further information, see the previous paper (Kemal & Koçak, 2016b).

List of the Geometridae species recorded from the Bahçesaray District

More than 750 specimens of Sterrhinae, belonging to 25 species were collected by the authors from Bahçesaray district. This group will be separately studied, therefore they are excluded from the present faunistic list. The rest of the 72 geometrid taxa are listed below alphabetically.

166-190. Species of the subfamily Sterrhinae.

191. *Aleucis distinctata* (Herrich-Schäffer, [1839])

Synonym(s): *distinctata* Herrich-Schäffer, [1839]; *pictaria* auct. Range (in code): PT ES FR IT? GB BE NL LU DE CH CZ YU BG GR TR DK 01 17 47 59 65 71 01H 65A 65An *Vernal, nocturnal, uncommon, univoltine. It is found at the openings of woodland.*

192. *Aplasta ononaria* (Fuessly, 1783)

Synonym(s): *ononaria* Fuessly, 1783; *rubellata* Villers, 1789; *rubicapraria* Hübner, 1793; *sudataria* Hübner, [1817]; *faecataria* Hübner, [1819]; *ononata* Bellier, 1861 Original Reference: *Phalaena ononaria* Fuessly, 1783, Arch. Insektengesch. 3: 1-2, pl. 17 6 figs. 1-5. Syntypes: Schweiz. Range (in code): PT ES Mu FR Co Si IT GB BE NL LU DE CH AT PL CZ SK HU RO YU AL BG GR TR CY IQ LB Bsa JO SY RU MD UA BY IL Pa He IR AM Cc 01 05 06 09 12 13 14 16 17 21 23 31 33 39 40 41 42 44 46 48 56 59 65 71 80 01H 01J 05A 12A 12Ab 12Ai 13G 13Gd 16A 21N 21Nb 33R 42B 44A 44Ab 56F 65A 65Ai 65Au 65D 65Dp 65F 65Fç 65Fo 65Fp 65Fç 65Fz 65Fg 65K 65Kç 65N 65Nd 65L 65Lb 65N 65Np6 65Np7 65Nr2 65Nr3 65Nm 80B 80Bc *Like the preceding species, but commoner.*

193. *Aplocera columbata* (Metzner, 1845)

Map 1

Synonym(s): *columbata* Metzner, 1845; *nomadaria* Herrich-Schäffer, 1848 Original Reference: *Geom[etra] columbata* Metzner, 1845, Stettin ent. Ztg. 6(6): 188-189. Type(s): [Türkei]: *Turcia europaea*. Range (in code): BG GR TR RU Cc GG AZ AM Da 05 06 13 14 16 24 25 42 58 65 76 05A 13G 13Gw 16A 58G 58Gg 65A 65Ac 65Ac3 Prep. no: GP433♂. *Aestival, diurnal- nocturnal at alpine zone, univoltine. New to the fauna of Van Province!*

194. *Aplocera numidaria* (Herrich-Schäffer, [1852])

Map 2

Synonym(s): *numidaria* Herrich-Schäffer, [1852] Original Reference: *Larentia numidaria* Herrich-Schäffer, [1852], Syst. Bearb. Schmett. Eur. 6 (55): 80; *ibid.* 1851, 3: pl. 84 fig. 514 [uninominal]. Syntypes: Türkiye: Amasia. Range (in code): TR Cc AM GG 05 08 25 42 60 65 76 05A 42B 65A 65Ab 65Aba 65F 65Fw 65Fz Prep. no: GP430♂ *Like the preceding species.*

195. *Aplocera obsitaria* (Lederer, 1853)

Map 3

Synonym(s): *obsitaria* Lederer, 1853; *pseudopallidata* Bytinski-Salz & Brandt, 1937 Original Reference: *Anaitis obsitaria* Lederer, 1853, Verh. zool.- bot. Ver. Wien 3: 264-265. Syntypes 2♀: [Türkei]: Diarbekir. Range (in code): TR Cc IQ IR Fa Shr Sse Th Elb Nss LB Bsa 04 05 21 25 42 44 46 47 58 62 65 76 05A

42B 44E 44Eh 46C 46G 46Gi 58N 65A 65Ac 65Ac3 65Am 65Am4 65D 65Dd 65Dda 65F 65Fm 65Fp 65G 65Gt 65H 65N 65Np1 65Np2 65Nm Prep. no: GP431[♂] Like the preceding species.

196. *Aplocera plagiata* (Linnaeus,1758)

Fig.6, Map 4

Synonym(s): *plagiata* Linnaeus,1758; *duplicata* Fabricius,1775; *terlineata* Goeze,1781; *triplicata* Geoffroy,1785; *plagiaria* Boisduval,1840; *scotica* Richardson,1952 Original Reference: *Phalaena plagiata* Linnaeus,1758, Syst. Nat. (Edn.10): 526. Type(s): Europa. Range (in code): DZ Lbs PT ES FR Co Sa Si IT IE GB BE NL LU DE CH AT PL CZ SK HU RO YU AL BG GR Cr TR Cc GG AZ AM Nv IQ Rwz IR Ab Oru Fa Sse Com Kz Gls Kh CY DK NO SE FI EE LV LT RU Krl MD UA BY CN Ui Ju Kön IL Pa Js He LB Bsa 01 05 06 13 14 16 17 18 22 23 24 29 30 31 33 34 35 38 39 42 44 45 46 56 58 60 61 62 65 71 75 80 81 01H 05A 05G 06R 06Rb 13A 13Ab 13Ax 13G 13Gü 13Gw 13Gs 16A 18F 31D 31F 42B 44E 44Eh 46G 46Gi 56F 58N 60H 60Hb 61K 65A 65Aa 65Am 65Am1 65Am4 65An 65Ai 65As 65D 65Df 65F 65Fg 65Fp 65Fz 65K 65Kb 65Kl 65N 65Nc 65Nc4 65Np 65Np1 65Nr4 65Nm 75F 75Fb 80B 80Bc Prep. no: GP427[♂] Vernal- autumnal, nocturnal-diurnal, very common, bivoltine. It is found at the openings of woodland, gardens, tragacanthic steppes in the mountains, from lowland to alpine zone.

197. *Ascotis selenaria* ([Denis & Schiffermüller],1775)

Synonym(s): *#selenaria* [Denis & Schiffermüller],1775; *dianaria* Hübner,[1817]; *#seleneris* Okyar & Aytaç,1999 Original Reference: *Geometra selenaria* [Denis & Schiffermüller], 1775, Ankündigung syst. Werkes Schmett. Wienergegend: 101. Type(s): [Austria]: Vienna district. Range (in code): ES FR Co Sa Si IT MT LU DE CH AT PL CZ SK HU RO SS YU AL BG GR Cr TR Cc AZ RU MD UA BY IL Pa Mer CY PK Swa Sgl Klm SdS 01 05 10 14 16 17 21 22 31 33 34 45 46 52 56 57 61 65 81 01D 01J 01H 05A 16A 21N 21Nb 31A 31Ab 31F 31K 31Ka 31Ka3 31M 33R 46G 46Gf 52C 52G 52Gb 56F 61K 61Ka 65A 65Ai Prep. no: GP655[♂] GP656[♂] GP664[♂]. Aestival, nocturnal, rare. New to the fauna of Van Province!

198. *Camptogramma bilineatum* (Linnaeus,1758)

Synonym(s): *bilineata* Linnaeus,1758; *brocatella* Fourcroy,1785; *dumetata* Schrank,1802; *bilinearia* Boisduval,1840; *musauria* Freyer,1846; *testaceolata* Staudinger,1871 Original Reference: *Phalaena* (Geometra) *bilineata* Linnaeus,1758, Syst. Nat. (Edn.10) 1: 525. Type(s): "Habitat in Suecia". Range (in code): MA TN DZ Orn Clo PT ES Mu FR Co Si IT MT IE GB Sc Sht BE NL LU DE CH AT PL CZ SK HU RO YU AL BG GR Cr Rd TR AZ IQ IR Ab Oru Msw Ak Jal Fa Sse Mz Gls Kh DK NO SE FI EE LV LT RU Ur At MD UA Cm BY AZ Kir Cc AM GG KG TM Kp IL Pa LB Bsa 01 05 06 10 13 14 16 17 18 21 22 23 28 30 33 34 35 36 38 39 42 44 45 46 48 52 56 57 59 60 65 73 80 01B 01D 01K 05A 06R 06Rb 06Rd 10K 10Ka 13A 13Ab 13Ax 13C 13Cç 13F 13G 13Gd 13Gg 16A 21L 21Lf 28N 30D 30Dx 31D 33G 33R 36D 36Db 44F 44Fb 44L 44Lc 44O 44Oi 48G 48D 52A 52G 52Gb 56F 56Fa 56Fc 56Fi 56Fn 56Fç 57E 60G 65A 65Ai 65Au 65At 65At2 65B 65Bn 65Bn1 65D 65Dl 65Dlc 65Do 65Doa 65F 65Fd 65Fi 65Fz 65N 65Np 65Nm 73A 73Ad 73Ad2 73D 73Df 80B 80Bc Vernal- autumnal, nocturnal-diurnal, locally common, bivoltine (?).

199. *Cataclysmes riguada* (Hübner,[1813])

Synonym(s): *riguada* Hübner,[1813] Original Reference: *Geometra riguada* Hübner,[1813], Samml. eur. Schmett. 5: pl.69, fig.358. Type: Europa. Range (in code): PT ES FR Co Si IT BE NL DE CH AT PL CZ SK HU RO YU AL BG GR TR AZ AM LT RU Tv MD UA BY IR Elb Mz Th AF TM Kp TJ KK T-S KG Lps At Ur Am Cm CN Ui Ku Cc GG Kir AZ AM 05 06 14 16 24 36 38 42 50 58 65 71 76 05A 16A 36D 36Db 50G 58N 65A 65Ai 65Am 65Am4 76C New to the fauna of Van Province!

200. *Catarhoe permixtaria* (Guenée,[1858])

Fig. 7, Map 5

Synonym(s): *#permixtaria* Herrich-Schäffer,1851; *permixtaria* Guenée,[1858] Original Reference: *Melanippe permixtaria* Guenée,[1858], Spec. Gén. Lépid. 10(2): 404. Type(s): [Lebanon]: Beyrut. Range (in code): IT RO YU MK BG GR TR LB AZ Nv Cc Kir Ord Tbl GG AM IR Gls TM Kp IL Pa Car Js JO 05 06 13 14 16 17 30 31 42 46 56 65 71 05A 13F 13G 13Gg 16A 30B 30Bd 30Bc1 30Bx 31M 42B 56F 65A 65An 65At 65At5 65Ai 65B 65Bo 65Bx 65D 65Df 65Dg 65Dga 65Dh 65F 65Fr 65Fm 65Fp 65Fz 65H 65Hg 65K 65Kl 65Kd 65Kg 65N 65Np8 65Nm Aestival, nocturnal- diurnal, uncommon- common, univoltine.

201. *Chesistege korbi* (Bohatsch,1910)

Figs. 1-5, 30, 34, Map 6

Synonym(s): *korbi* Bohatsch,1910 Original Reference: *Chesias korbi* Bohatsch,1910, Jb. Wien. ent. Ver. 20: 164. Syntypes: [Türkei, Iğdır Prov., Tuzluca]: "Raupe auf Cephalaria procera über 2000m bei Takaltu oberhalb Kasikoparan (Russ. Armenien)". Range (in code): TR JO IQ TM Kp Cc AM 06 13 24 31 46 56 58 65 71 76 13G 13Gö 13Gğ 56F 58N 65A 65Am 65Am4 65D 65Df 65F 65Fp 65Fz 65N 65Nb 76C 76D 76Dj GP2458[♂]

This species is new to Van Lake Basin, namely, Bitlis and Van provinces. The first author, observed a caterpillar on the basal leaf of a Lamiaceae plant (Phlomis or Salvia) at Koruklu, Saruhan Mt. 2000m (Bitlis Province), and reared it in captivity. On 18 October 2011, adult of *Chesistege korbi* emerged. Besides, the authors collected this species from Tutumlu, Van Province,

and Artos Mt. in late September, 2013. In the present paper, *Chesistege korbi* is reported from Bahçesaray district for the first time (**Figs. 30, 34**). Its male genitalia is illustrated here. Autumnal, nocturnal, uncommon, univoltine.

Material studied: 1♂, Bitlis Prov., Tatvan, Saruhan Mt., Koruklu 2000m, as larva on 4 6 2011, emerged on 18 10 2011 (reared by M Kemal), 1♂, Van Prov., Tuşba, Tutumlu, Karaağaç mezra 1685m, 28 09 2013, 1♂, Van Prov., Gevaş, Artos Mt. 1950m 30 09 2013, 1♂, Van Prov., Çatak, Saklıvadi 2030m, 8 10 2016, A Koçak leg.; 2♂, Van Prov., Bahçesaray Upper Mukus valley 1840m (65Am4) 3 10 2016, M. Kemal & A. Koçak leg. (coll. Cesa)

202. *Chiasmia clathrata* (Linnaeus, 1758)

Synonym(s): *clathrata* Linnaeus, 1758; *almacola* Wehrli, 1934. **Original Reference:** *Phalaena clathrata* Linnaeus, 1758, Syst. Nat. (Edn.10)1: 524. Type(s): Europa. **Range (in code):** MA DZ PT ES FR Co Si IT IE GB BE NL LU DE CH AT PL CZ SK HU RO YU AL BG GR TR Cc GG AZ AM DK NO SE FI EE LV LT RU MD UA BY CN Ui Ju Kun Li KG Ssn Lps 05 06 10 13 14 16 18 21 22 30 31 33 34 36 42 46 49 50 56 65 71 75 80 81 05A 06R 06Rb 10K 10Ka 13Gö 13Gg 16A 18F 21N 21Nb 21Nc 21Nh 30B 30Bb 30Bk 31D 36D 36Db 49E 49Ea 49F 49Fb 56F 56Fg 65A 65Ai 65D 65Ds 65Dt 65F 65Fb 75F 75Fb 80B 80Bc Vernal- aestival, nocturnal-diurnal, uncommon-common, univoltine.

203. *Chloroclysta miata* (Linnaeus, 1758)

Synonym(s): *miata* Linnaeus, 1758; *miaria* [Denis & Schiffermüller], 1775; *viridifasciaria* Goeze, 1781; *virgata* Fourcroy, 1785 nec Hufn., 1767; *coraciata* Hübner, [1799]; *viridulata* Zetterstedt, 1839; *coraciaria* La Harpe, 1853. **Original Reference:** *Phalaena miata* Linnaeus, 1758, Syst. Nat. (Edn.10)1: 526. Type(s): Europa. **Range (in code):** PT ES FR Co Sa IT IE GB BE NL LU DE CH AT PL CZ SK HU RO YU BG TR Arr Cc GG DK NO SE FI EE LV LT RU MD UA BY IR Fa Sse Elb Th AF TJ Pm 06 14 65 76 06H 06R 14E 65A 65Ai 65F 65Fp 65Fz Aestival, nocturnal, uncommon, univoltine.

204. *Coenotephria ablutaria* (Boisduval, 1840)

Figs. 36, 48-49, Map 7

Synonym(s): *ablutaria* Boisduval, 1840; *probaria* Herrich-Schäffer, 1852; *ruficinctaria* Guenée, [1858]; *ochrearia* Staudinger, 1901. **Original Reference:** *Eubolia ablutaria* Boisduval, 1840, Genera index meth. eur.: 203, Type: "Gall. mer." [without description; simply nomen nudum!] **Range (in code):** FR IT Co Sa Si SS HV B-H YU GR BG RO UA CY Rd Cr EG Sn IL Pa Car Js IR Kd Fa IQ Brs Dia Cc GG Bjo AM 01 05 16 17 29 31 34 35 36 42 46 48 56 65 01G 01H 05A 31K 31Ka 42B 48L 56F 65A 65Am 65Am2 GP2346♂. New to the fauna of Van Province!

205. *Colotois pennaria* (Linnaeus, 1761)

Fig. 8

Synonym(s): *pennaria* Linnaeus, 1761; *cerasi* Fabricius, 1775; *bifidaria* Haworth, 1809. **Original Reference:** *Phalaena Geometra pennaria* Linnaeus, 1761, Fauna Suecica: 324. Type(s): Sweden. **Range (in code):** DZ Ges MA PT ES Mu FR Co Sa Si IT IE GB BE NL LU DE CH AT PL CZ SK HU RO YU AL BG GR Cr TR Cc GG DK NO SE FI EE LV LT RU Us MD UA BY CY 01 05 06 13 22 33 34 52 56 65 75 01G 01H 05A 06R 06Rb 13C 13Cd 13Ce 52G 52Gb 56F 56Fb 56Fo 65A 65An 65Am 65Am4 75F 75Fb Autumnal, nocturnal, common, univoltine. It is found at the openings of woodland. New to the fauna of Van Province!

206. *Costaconvexa polygrammata* (Borkhausen, 1794)

Synonym(s): *polygrammata* Borkhausen, 1794; *polygrammaria* Haworth, 1809; *conjunctaria* Lederer, 1853; *#rosea* Wiltshire, 1946. **Original Reference:** *Phalaena polygrammata* Borkhausen, 1794, Natur. eur. Schmett. 5: 560. Syntypes: Europa. **Range (in code):** PT ES FR Co Sa Si IT IE GB BE NL LU DE CH AT PL CZ SK HU RO YU AL BG GR Cr TR Cc AZ GG Tbl Lag Kir Len AM LB IL Pa IQ IR Fa Shr Mz Kh AF DK SE FI LV LT RU Ur KK KG TJ UZ TM MD UA Cm BY CN Ui Ku 01 05 18 33 42 65 01B 01D 01G 01H 01J 05A 33R 42B 65A 65Ai New to the fauna of Van Province!

207. *Crocallis* (s.str.) *loebeli* Stadie & Fiebig, 2014

Figs. 9, 50-51, Map 8

Synonym(s): *loebeli* Stadie & Fiebig, 2014. **Original Reference:** *Crocallis loebeli* Stadie & Fiebig, 2014, Esperiana 19: 239-241, figs. Holotype ♂: Türkei, Prov. Sivas, Gürün Gökpınar (ZSM). **Range (in code):** TR 02 07 30 38 44 50 58 62 65 02F 02Fc 07A 30B 30Bc 38E 44E 44F 44Fb 50G 50Gd 58G 58Gh 58Gi 62G 65A 65Ai Prep. no: GP2415♂. Autumnal, nocturnal, uncommon, univoltine. It is found at the openings of woodland. New to the fauna of Van Province!

208. *Dasycorsa modesta* (Staudinger, 1879)

Fig. 10, Map 9

Synonym(s): *modesta* Staudinger, 1879. **Original Reference:** *Dasycephala modesta* Staudinger, 1879, Horae Soc. ent. ross. 14: 445. Type ♀: [Türkei]: Taurus (Haberhauer leg.). **Range (in code):** RO YU BG GR CY TR LB Bsa IL Pa Tbs IQ IR 01 05 14 17 21 22 31 33 39 42 44 46 48 49 56 59 65 71 73 01H 01J 21N 21Nh 31K 31Ka

31M 42B 44L 44Lc 48L 49F 49Fb 56A 56F 65A 65An 65Am 65Am2 65E 65F 65Fd 65Fi 65Fz 65K 65Ky 65Ky1 65N 65Nm 65Np 73A 73Aç Vernal, nocturnal, common, univoltine.

209. Docirava mundulata (Guenée,[1858])

Fig. 11, Map 10

Synonym(s): *mundulata* Guenée,[1858]; *submundulata* Staudinger,1892 Original Reference: *Anaitis mundulata* Guenée,[1858], [in] Boisduval & Guenée, Hist. nat. Insectes (Spec. gen. Lepid.) 10: 496. Syntypes 2♂ 1♀: [Lebanon]: Beyrouth. Range (in code): LB Bei TR JO IL Pa Car Hf Js 13 21 23 30 31 46 63 65 73 05A 13F 31K 31Ka 31Ka3 63E 65A 65Am 65Am4 65K 65Ku 73Aç 73Aç2 Prep. no: GP432♂ Autumnal, nocturnal, uncommon, univoltine.

210. Drepanopterula limaria (Christoph,1885)

Figs. 37, 52-53, Map 11

Synonym(s): *limaria* Christoph,1885 Original Reference: *Epione limaria* Christoph,1885, [in] Romanoff, Mém. lepid. 2: 97, pl.5 fig.6. Type ♀: [Azerbaijan]: Ordubad. Range (in code): TR Cc AZ Nv Ord 56 65 56F 65A 65Am 65Am4 Prep. no: GP2441♂. Very rare species. Previously, the authors reported this species from Şirvan district (Siirt Province). This record is the second provincial one in Turkey. New to the fauna of Van Province!

211. Dyscia (Calodyscia) innocentaria (Christoph,1885)

Figs. 12, 38

Synonym(s): *innocentaria* Christoph,1885; *sicanaria* Oberthür,1923; *sicula* Reisser,1940; *#innocentana* Pugaev & Zolotuhin,2006; *#hazroa* Koçak & Kemal,2015 Original Reference: *Aspilates innocentaria* Christoph,1885, Mém. lepid. 2: 125, pl.6 fig.5. Lectotype ♂: Turkmenia, Achal Tekke, Nuchur, designated by Trusch & Erlacher (2002: 535) (ZISP). Range (in code): Co Sa Si IT YU HV AL MK BG GR RU MD UA Cm TR IQ Ama Shq IR Gl Kh TM JO Amm IL Pa Js SY Dms CY Cc Da GG Bjo Lag AZ Kir AM Eri AF KG 01 05 06 07 13 14 16 17 18 20 21 25 35 36 38 42 44 45 46 47 50 56 65 71 13A 13Ab 13Ax 21L 21Lc 56F 65A 65Ai 65Am 65Am1 65Am3 65Am4 65D 65Df 65F 65N 65Np 65Np7 65Nm Prep. no: GP2187♂ GP2358♂ Aestival-autumnal, nocturnal, common, univoltine.

212. Ellicrinia cordiaria (Hübner,1790)

Fig. 13, Map 12

Synonym(s): *cordiaria* Hübner,1790 Original Reference: *Phalaena cordiaria* Hübner,1790, Beitr. Gesch. Schmett. 2(1): 31, Tab.4 fig.Z. Range (in code): AT SK HU RO YU BG GR RU MD UA BY TR Cc AZ Nv AM GG IQ Dk IR FA Sse IN Kul Hp 01 06 09 14 16 18 22 36 38 42 44 45 46 51 56 58 59 61 65 71 01B 01H 16A 18F 36D 36Db 38K 42B 46G 46Gf 56F 56Fn 58N 61K 65A 65Ai 65Am 65Am2 65Am4 65An 65F 65Fm 65H 65Hb 65N 65Np6 65Nm Vernal- aestival, nocturnal, common, univoltine.

213. Enanthyperythra legataria (Herrich-Schäffer,[1852])

Synonym(s): *legataria* Herrich-Schäffer,[1852] Original Reference: *Hypoplectis legataria* Herrich-Schäffer,[1852], Syst. Bearb. Schmett. Eur. 6 (55): 71. Syntypes: [Europe?]. Range (in code): MK GR? TR Cc AZ Nv Ord 05 06 14 16 32 44 56 65 05A 16A 44L 44Lc 56D 65A 65Am 65Am1 65D 65Dy

214. Ennomos (Deuteronomos) fraxineti Wiltshire,1947

Map 13

Synonym(s): *effractarius sensu* Wehrli,1934; *fuscantaria sensu* Wiltshire,1946; *fraxineti* Wiltshire,1947 Original Reference: *Ennomos ? effractaria ssp. fraxineti* Wiltshire,1947, Entomologist's Rec. J. Var. 59: 111, pl.v fig.11. Holotype ♂: Tehran: Darband, 6000ft. Range (in code): TR IR Elb Th Gl IQ Slf 13 30 42? 44? 56 65 80 13C 13Cd 30B 30Bc 30Bc1 42B? 44L? 56F 56Fq 65A 65Ai 80B 80Bb Prep. no: GP2264♂ GP2434♂ Aestival, nocturnal, uncommon, univoltine. New to the fauna of Van Province!

215. Ennomos (Deuteronomos) quercarius (Hübner,[1813])

Fig. 39

Synonym(s): *quercaria* Hübner,[1813] Original Reference: *Geometra quercaria* Hübner,[1813], Samml. eur. Schmett. 5: pl.80, figs.411,412. Syntypes: Europa. Range (in code): PT ES An FR Si IT CH AT PL SK HU RO YU MK AL BG GR Cr TR Cc GG AZ AM IR Gl Fa IQ RU MD UA Cm BY CY Cr LB Bsa IL Pa JO 05 07 14 31 33 34 42 55 56 60 65 05A 14I 31A 31Ab 42B 55F 56F 56Fb 65A 65Am 65Am4 65Ai Like the preceding species. New to the fauna of Van Province!

216. Euphyia frustata (Treitschke,1828)

Synonym(s): *frustata* Treitschke,1828; *muscosata* Donzel,1837 Original Reference: *Acidalia frustata* Treitschke,1828, Schmett. Eur. 6 (2): 50. Syntypes: Hungary, Austria. Range (in code): MA DZ PT ES FR Co Sa Si IT BE LU DE CH AT PL CZ SK HU RO YU AL BG GR TR Cc GG Bjo Kir AZ AM IQ LB Bsa 05 42 46 60 61 65 05A 42B 46G 46Gi 46F 65A 65Am 65Am1 65Am4 65D 65Df 65Fz Prep. no: GP500♂ GP2353♂ Aestival, nocturnal, uncommon, univoltine.

217. Eupithecia breviculata (Donzel,1837)**Map 14**

Synonym(s): *breviculata* Donzel,1837; *anatolica* Schwingenschuss,1939 [ssp.]; *georgica* Vojnits,1977 [ssp.]
Original Reference: *Melanthia breviculata* Donzel,1837, Annls Soc. ent. Fr. 6: 478, pl.18 fig.7. Type: France, Hyères. Range (in code): MA DZ Onç TN PT ES FR Co Sa Si IT MT DE CH HU RO YU AL BG GR Cr Rd TR Cc AZ Lag Kir Len Nv SY RU UA IL Pa CY JO IR Mz TM Kp Da 01 05 06 10 14 16 17 21 30 31 35 36 39 42 46 56 65 71 80 01D 01G 01H 01J 05A 06R 10K 10Ka 16A 21N 21Nb 21Nc 21Nh 31M 36D 36Db 42B 56F 65A 65At 65At5 65D 65Dg 65F 65Fg 65Fp 65Fz 80B 80Bc GP2336[♂] Aestival, nocturnal, uncommon, univoltine.

218. Eupithecia gratosata Herrich-Schäffer,1861**Fig. 14, Map 15**

Synonym(s): *gratosata* Herrich-Schäffer,1861; *subseparata* Christoph,1885 Original Reference: *Eupithecia gratosata* Herrich-Schäffer,1861, Neue Schmett. 3: 27, fig.135. Type(s): Patria incognita. Range (in code): MA DZ TN PT ES FR Sa Si IT PL RO YU AL BG GR TR IQ LB Bsa Cc GG AZ IR 16 25 31 45 56 58 65 16A 56F 58N 65A 65Am 65Am4 65D 65F 65Fd 65Fr Aestival, nocturnal, uncommon, univoltine.

219. Eupithecia gueneata Millière,1862**Fig. 15, Map 16**

Synonym(s): *gueneata* Millière,1862; *busambraria* Ragusa,1889 Original Reference: *Eupithecia gueneata* Millière,1862, Icon. descr. chen. lépid. inédits 1 (6): 257-259, 279, pl.1 figs. 1,2. Type: France, "Ardèche". Range (in code): MA ES FR Si IT CH AT PL CZ SK HU RO YU AL GR TR Cc AZ Lag TM Kp IR AM 04 30 65 30B 30Bd 30Bx 30D 30De 65A 65Am 65Am4 65B 65Bo 65Bx 65D 65Df 65F 65Fp 65Fz Aestival, nocturnal, uncommon, univoltine.

220. Eupithecia venosata (Fabricius,1787)**Figs. 31, 40, 54-55, Map 17**

Synonym(s): *venosata* Fabricius,1787; *insignata* Hübner,1789; *decussata* Donovan,1799; *comparanda* Vojnits,1981 Original Reference: *Phalaena venosata* Fabricius,1787, Mant. Ins. 2: 209, nr.205. Type(s): Austria: [Wien]. Range (in code): MA PT ES FR Co Sa Si IT MT IE GB BE NL LU DE CH AT PL CZ SK HU RO YU AL BG GR TR Cc GG Bjo Mng Lag AZ DK NO SE FI EE LV LT RU Sb MD UA BY PK Swa Klm Sha Ch AF Nu 05 16 21 61 6505A 16A 21L 21Lc 61K 65A 65Ai 65D 65Dy 65F 65Fr Prep. no.: GP2455[♂] Aestival, nocturnal, uncommon, univoltine. For its precise identity genitalic preparation is necessary.

221. Gnopharmia rubraria Staudinger,1892

Synonym(s): *rubraria* Staudinger,1892 Original Reference: *Gnopharmia rubraria* Staudinger,1892, Dt. ent. Z., Iris 5: 184-185, Taf.2 f.12. Syntypes: [Türkei]: Maraş, Aintab; [Israel]: Jerusalem. Range (in code): TR IL Pa Js 27 30 33 46 63 65 71 30B 30Bd 30Bc1 30Bx 33A 63E 65A 65Am 65Am1 Aestival, nocturnal, common, univoltine. New to the fauna of Van Province!

222. Gnophos (Dicrognophos) gorgatus Brandt,1938**Map 18**

Synonym(s): *gorgata* Brandt,1938 Original Reference: *Gnophos gorgata* Brandt,1938, Ent. Rdsch. 55: 617-620, figs. 404-408. Syntypes: Iran: [Fars]: Comée, Sine-Sefid. Range (in code): TR IR Kd Fa Sse Com Kz 30 65 65A 65Ai 65Am 65Am1 65Am3 65Am4 65At 65At5 65Ac 65Ac3 65D 65Dh 65Dg 65Dga 65Df 65Fz Aestival, nocturnal, common, univoltine. New to the fauna of Van Province!

223. Gnophos (Dicrognophos) sartatus Treitschke,1827**Map 19**

Synonym(s): *sartata* Treitschke,1827; *syriaca* Thierry-Mieg,1916. Original Reference: *Gnophos sartata* Treitschke,1827, Schmett. Eur. 6 (1): 175-177. Syntypes ♂♀: [Croatia]: "Dalmatien". Range (in code): Co Sa Si IT HV YU AL BG GR Pl Sms Cr Rd TR Cc GG AZ AM LB Bsa RU MD UA Cm BY SY IR Fa Sse IL Pa Mer Car Hf Js CY 05 06 14 16 17 20 21 27 30 31 34 35 42 45 46 56 65 80 05A 06K 06Kc 16A 21L 21Lc 27E 31K 31Ka 31Ka5 42B 46G 46Gi 56F 65A 65Ai 65Aö 65Am 65Am4 80B 80Bc Prep. no.: GP2192[♂]. Aestival, nocturnal, uncommon, univoltine. New to the fauna of Van Province!

224. Heliomata glarearia (Brahm,1791)**Fig. 16**

Synonym(s): *#glarearia* [Denis & Schiffermüller],1775; *glarearia* Brahm,1791. Original Reference: *Phalaena glarearia* Brahm,1791, Ins. Kal. 2 (1): 320, nr.205. Range (in code): FR Si IT DE CH AT PL CZ SK HU RO YU AL BG GR TR Cc GG AZ AM IR GlS RU MD UA BY CN Ui Ku 01 05 06 13 14 16 29 30 36 37 39 43 49 56 60 65 71 75 76 01L 05A 06R 06Rd 13Gö 13Gğ 16A 30D 30Dx 36D 36Db 37F 49F 49Fb 56F 56Fw 60H 60Hb 65A 65Ac 65Ac3 65Ai 65Am 65Am1 65An 65As 65At 65At5 65D 65Dd 65Dda 65Df 65Dg 65Di 65Dr 65Dn 65Ds 65Du 65F 65Fç 65Fr 65Fp 65Fz 75F 75Fd 76B 76Bj 76D 76Dd Vernal-aestival, nocturnal-diurnal, common, univoltine.

225. Hyposcotis (Charissa) certhiata (Rebel & Zerny,1931)**Figs. 41, 56-57, Map 20**

Synonym(s): *certhiatus* Rebel & Zerny,1931; *bezengius* Niesiolowski,1953. Range (in code): B-H YU AL BG GR TR Cc AM GG 42 51 65 42B 51B 51Bc 65A 65Ab 65Aba Aestival, nocturnal, common, univoltine. New to the fauna of Van Province!

226. Hyposcotis (Euchrognophos) dubitaria (Staudinger,1892)

Synonym(s): *dubitaria* Staudinger,1892 Original Reference: Gnophos ? dubitaria Staudinger,1892, Dt. ent. Z., Iris 5: 192-193. Syntypes: [Iran]: Schahrud; [Türkei]: Mardin. Range (in code): GR Cr TR LB Bsa Cc AM IR Fa Sse Com Kz 38 47 56 65 56F 56Fa 65A 65Am 65Am4 65D 65Df Aestival, nocturnal, common, univoltine. Sympatric with several Hyposcotis species. New to the fauna of Van Province!

227. Hyposcotis (Euchrognophos) nannodes (Wehrli,1936)

Synonym(s): *nannodes* Wehrli,1936 Original Reference: Gnophos nannodes Wehrli,1936, Am. Papillons 1936: 151-152. Syntypes 9♂ 1♀: [Turquie]: "Wan Umgebung Kurdistan", 1900-2200m (ZSM). Range (in code): TR 65 65A 65Am 65Am4 65K Prep. no.: GP2417♂. Like the preceding species.

228. Hyposcotis libanotica (Wehrli,1931)

Figs. 42, 58-59, Map 21

Synonym(s): *libanotica* Wehrli,1931 Original Reference: Gnophos libanotica Wehrli,1931, Mitt. münch. ent. Ges. 21: 45. Syntypes 10♂: Libanon: Bscharre, leg. E. Pfeiffer (ZSM). Range (in code): LB Bsa TR AM Cc 07 65 07D 07Db 65A 65Am 65 Am1 65Am2 65Am4 Prep. no.: GP746♂ GP2350♂. Vernal-aestival, nocturnal, common, univoltine. New to the fauna of Van Province!

229. Hyposcotis sp.

Figs. 43, 60-61

This species remains unidentified, for the time being.

230. Isturgia hopfferaria (Staudinger,1879)

Map 22

Synonym(s): *hopfferaria* Staudinger,1879 Original Reference: Eubolia hopfferaria Staudinger,1879, Horae Soc. ent. ross. 14: 458-460. Syntypes: [Türkei]: Amasia (Caraman) (Emil & Johann leg.). Range (in code): TR 05 06 13 14 25 30 38 42 50 65 71 05A 06K 06Kb 13A 30D 30Dp 38H 38Hc 65A 65At 65At5 65Ai 65Ab 65Aba 65D 65Dg 65Ds 65K 65Ky 65Ky1 Prep. no.: GP2040♂ GP2295♂ Aestival, nocturnal, uncommon, univoltine.

231. Larentia clavaria Haworth,[1809]

Map 23

Synonym(s): *clavaria* Haworth,[1809]; *pallidata* Staudinger,1901 Original Reference: Geometra clavaria Haworth,[1809], Lepid. Br.: 32. Type: Britain (BMNH). Range (in code): MA DZ TN PT ES FR Co Sa Si IT MT IE GB BE NL LU DE CH AT PL CZ SK HU RO YU BG GR Cr Rd CY TR IQ LB DK NO SE FI EE LV LT RU Ur At MD UA Cm BY Cc GG AZ AM IL Pa Js IR Ab KG Mn Ssn UZ TJ 14 31 46 56 65 31K 31Ka 31Ka5 56F 65A 65Am 65Am4 65D 65Df Autumnal, nocturnal, uncommon, univoltine. New to the fauna of Van Province!

232. Lithostege palaestinensis Amsel,1935

Figs. 17, 44, 62-63, Map 24

Synonym(s): *palaestinensis* Amsel,1935; *ali* Wiltshire,1941. Original Reference: Lithostege palaestinensis Amsel,1935, Mitt. zool. Mus. Berlin 20 (2): 276, pl.14 fig.9. Range (in code): GR CY TR SY Hal IL Pa JO IQ Kbl Fat Njf Agh SA SA63 IR Fa Zj Ss Bu Kz Mz Th Elb Dam 31 33 36 63 65 31M 33F 36F 36Fb 63D 63E 65A 65Am 65Am1 65Am2 GP2347♂. Vernal-aestival, nocturnal, common, univoltine. New to the fauna of Van Province!

233. Minoa murinata (Scopoli,1763)

Synonym(s): *murinata* Scopoli,1763; *sordata* Linnaeus,1767; *fusca* Hufnagel,1767; *euphorbiata* [Denis & Schiffermüller],1775; *unicolorata* Hübner,1787; *euphorbiaria* Hübner,1799 Original Reference: Phalaena murinata Scopoli,1763, Entomologia Carniolica: 229. Type(s): [Slovenien]: Carniolia [Krain]. Range (in code): DZ Cst PT ES FR Co Si IT GB BE NL LU DE CH AT PL CZ SK HU RO YU AL BG GR TR Cc AZ GG AM RU Kr Tua MD UA BY CN Ui Kun 05 14 16 17 33 34 39 61 65 05A 16A 61K 65A 65Ai Aestival, nocturnal, uncommon, univoltine. New to the fauna of Van Province!

234. Nebula sp.1 [det. the authors & A.Hausmann] GP2413♂ For an identification help, we sent to Dr. Hausmann (Curator in the Zoologische Staatssammlung, München, and expert on the Middle Eastern Geometridae) an image of a Nebula sp. together with its male genitalia from Van Province (see figs.). Surprisingly, we received the same result as an answer, i.e., "Nebula sp." with his following comment:

“...As written before, generally the species diagnoses in the genus *Nebula* require much carefulness and cannot be based solely on wing pattern and/or male genitalia. Wing pattern is very similar between the species and often varies a bit. Unfortunately the male genitalia exhibit very small differences between species, which usually can be quantified only when having a broad statistical basis (not just one slide). In several species the length of male antennal ciliation offers differential features. Last but not least there are considerable differences in the COI gene, between all species that I could examine, so far. I believe that, from a zoogeographical point of view, twelve taxa may be considered for a potential identification of your moth, of which I would consider the following nine from Turkey, Transcaucasus and northern Iran as the more probable candidates...”

Under these circumstances, the species remains indeterminated, for the time being (**Figs. 18, 32, 45, 64-65**).

235. *Nebula* sp.2. This is the second species of the genus *Nebula* recorded from the district (Mukus valley). Its male genitalia shows several important differences from the species mentioned above, GP2462♂ (**Figs. 33, 46, 66-67**).

236. *Neognopharmia stevenaria* (Boisduval, 1840)

Synonym(s): *stevenaria* Boisduval, 1840; *lapidisaria* Freyer, 1841 Original Reference: *Halia stevenaria* Boisduval, 1840, Gen. Index Eur. Lepid.: 187. Range (in code): PT ES Mu FR IT RO YU MK AL BG GR Cr TR AZ Cc AM GG IQ IR Fa Sse Com Kz RU Sr IL Pa Car Hf LB Bsa CY 01 05 06 08 13 14 16 17 21 30 31 36 42 44 46 56 61 65 01B 01H 05A 08H 08Ha 13G 13Gw 13Gs 13Gy 16A 21N 21Nc 30B 30Bd 30Bc1 30Bx 30D 30Dx 36D 36Db 42B 44I 44Ic 46G 46Gf 56F 56Fn 61K 65A 65Ai 65D 65Df 65Dl 65Dlc 65F 65Fp 65Fz Aestival, nocturnal, common, univoltine.

237. *Nychiodes (Eunychiodes) divergaria* (Staudinger, 1892) Figs. 47, 68-69, Map 25

Synonym(s): *divergaria* Staudinger, 1892 Original Reference: *Nychiodes lividaria* var. *divergaria* Staudinger, 1892, Dt. ent. Z., Iris 5: 171. Syntypes: [Türkei]: “Mardin, Diarbekir”. Range (in code): TR LB Bei Bsa IL Pa Js RU Da Cc IR Elb IQ Brs Ry Rwx Dia 13 21 24 31 44 46 47 65 80 13G 13Gy 31M 46G 46Gi 65A 65Am1 65D 65Df 65Fz 80B 80Bb Prep. no.: GP2352♂ GP2357♂ Aestival, nocturnal, common, univoltine. It is found at the openings of woodland.

238. *Odontognophos zacharius* (Staudinger, 1879) Fig. 19, Map 26

Synonym(s): *zacharia* Staudinger, 1879 Original Reference: *Gnophos zacharia* Staudinger, 1879, Horae Soc. ent. ross. 14: 454-455. Type ♀: [Türkei]: “Amasia”. Range (in code): Cr TR Cc RU Da 01 05 14 31 42 46 51 65 71 01H 05A 31M 42B 51B 51Bc 65A 65Ai 65D 65Df Prep. no.: GP739♂ GP2416♂. Autumnal, nocturnal, uncommon, univoltine. New to the fauna of Van Province!

239. *Opisthograptis luteolata* (Linnaeus, 1758)

Synonym(s): *luteolata* Linnaeus, 1758; *crataegata* Linnaeus, 1761; *crataegaria* Hübner, [1823]; *#emaculata* Graeser, 1892; *impunctata* Osthelder, 1931. Original Reference: *Phalaena luteolata* Linnaeus, 1758, Syst. Nat. (Edn. 10): 525. Type(s): [Europa], in *Oxyacanthus*. Range (in code): DZ Anna PT ES FR Co Sa Si IT IE GB BE NL LU DE CH AT PL CZ SK HU RO YU AL BG GR TR Cc DK NO SE FI EE LV LT RU MD UA BY LB Bsa CN Ui Ku Kön KK Ik KG Ssn PK Swa Sgl 05 06 08 13 14 16 17 18 34 39 45 52 57 61 65 81 05A 05G 13G 13Gs 13Gw 16A 18F 52A 52G 52Gb 52Gd 61K 65A 65An 65F 65Fr 65L Prep. no.: GP483♂ GP659♂ Aestival, nocturnal, uncommon, univoltine.

240. *Orthonama obstipata* (Fabricius, 1794)

Synonym(s): *obstipata* Fabricius, 1794; *fluviata* Hübner, [1799]; *gemmata* Hübner, 1799; *albicinctata* Haworth, 1809; *angustata* Haworth, 1809; *quaerendaria* Costa, 1850; *baccata* Guenée, [1858]; *lapillata* Guenée, [1858]; *contrariata* Walker, 1862; *exagitata* Walker, 1862; *intrusata* Walker, 1862; *peracutata* Walker, 1862; *signataria* Walker, 1863; *obruptata* Walker, 1863; *pigrata* Walker, 1866; *plemyrata* R. Felder & Rogenhofer, 1875; *inconspicua* Warren, 1896; *brunneipennis* Hulst, 1896; *discata* Warren, 1905 Original Reference: *Phalaena obstipata* Fabricius, 1794, Ent. Syst. 3 (1): 199. Type: “Barbaria”. Range (in code): PT ES Mu FR Co Sa Si IT MT IS IE GB BE NL LU DE CH AT PL CZ SK HU RO YU AL BG GR Cr Rd TR IQ Agh GG AM Cc AZ IR Sse Fa AF DK NO SE FI EE LV RU Ur Sb Am Sh MD UA Cm BY KG KK UZ TJ TM CN MN KP KR JP ZA ZA10 ZA12 Kzu Nta IL Pa Jf Mtl LB Bsa MY Bor Sbh KBa Kh CY PK Swa Dara Sgl Yek YE Tbl Mng Kir Lag Hkd ZR EG ET KE TZ MA DZ Ges Bsk Nbr Gf TN 01 05 06 07 13 14 16 17 22 31 33 34 42 46 56 65 71 80 01J 05A 13A 13Ab 13Ax 16A 31K 31Ka 31Ka3 33G 56F 56Fb 65A 65Ai 65Am 65Am4 65D 65Dt 65F 65Fp 65Fz 80B 80Bc Aestival, nocturnal, uncommon, univoltine.

241. *Orthostixis calcularia* Lederer, 1853

Synonym(s): *calcularia* Lederer,1853 Original Reference: *Orthostixis calcularia* Lederer,1853, Verh. zool.- bot. Ver. Wien 3: 260-261. Syntypes: [Aserbaidjan]: Elisabethpol; [Türkei]: Amasia. Range (in code): Cc AZ Kir TR 05 12 13 14 42 46 49 65 05A 12A 12Ab 13C 13Cç 46G 46Gf 49E 49Ea 65A 65Ai 65Am 65Am1 65F 65Fb 65Fc 65Fg 65Fp 65Fz Aestival, nocturnal-diurnal, uncommon, univoltine.

242. *Orthostixis cribraria* (Hübner,[1799])

Fig. 20

Synonym(s): *cribraria* Hübner,[1799]. Original Reference: *Geometra cribraria* Hübner,[1799], Samml. eur. Schmett. 5: pl.16, fig.83. Type: Europa. Range (in code): si IT HU RO YU AL BG GR TR RU Cc GG AZ AM LB IR Elb Clu 01 05 06 12 13 14 16 17 29 31 33 42 46 56 65 72 75 80 01G 05A 06R 06Rb 12A 12Ab 12E 12Ed 13C 13Cç 13G 13Gü 13Gs 13Gw 16A 31C 33G 42B 46G 46Gf 49E 49Ea 56F 56Fq 65A 65Am 65Am1 65F 65Fb 72E 72Eh 75F 75Fd 80B 80Bb Aestival, nocturnal-diurnal, uncommon, univoltine.

243. *Ourapteryx malatyensis* Wehrli,1936

Synonym(s): *malatyensis* Wehrli,1936; *#malatyana* Wehrli,1936 [Tafel II]. Original Reference: *Ourapteryx malatyensis* Wehrli,1936, Mitt. münch. ent. Ges. 26 (1): 33-34, pl.2 fig.1. Syntypes 12♂ 2♀; [Türkei]: "Boli", 800m; Malatya- Tecde. Range (in code): TR 13 14 44 65 13G 13Gy 44L 44Lb 65A 65Ai 65F 65Fp Aestival, nocturnal, uncommon, univoltine.

244. *Phaiogramma etruscaria* (Zeller,1849)

Synonym(s): *etruscaria* Zeller,1849; *pulmentaria* Guenée,[1858]; *palaestinensis* Fuchs,1903. Original Reference: *Geometra etruscaria* Zeller,1849, Stettin ent. Ztg. 10 (7): 203. Syntypes 1♂ 3♀; [Italia]: Tuscany (BMNH). Range (in code): DZ Clo Anna Bsk TN Gf PT ES Mu FR Co Sa Si IT MT BE CH AT PL CZ SK RO YU AL BG GR Cr Rd TR IQ RU CY SY IR Kd Elb Th Fa Sse Com Kz AZ AM GG Smt Bjo Lag Kir Nv Ord Da Der Cc LB Bsa IL Pa Jf Mtl CN Üi Ii 01 05 14 16 17 21 28 31 32 33 39 42 44 46 52 56 61 65 76 80 01B 01D 01G 01J 05A 16A 21L 21Lc 28N 31K 31Ka 42B 44I 44Ic 44L 44Lc 46G 46Gf 52G 52Gb 56F 61K 65A 65Am 65Am1 65Am4 65D 65Dg 65F 65Fg 76A 76Ac 80B 80Bc Aestival, nocturnal, uncommon, univoltine.

245. *Peribatodes rhomboidarius* [Denis & Schiffermüller],1775)

Synonym(s): *#rhomboidaria* [Denis & Schiffermüller],1775; *inaequalis* Goeze,1781; *gemmaria* Brahm,1791; *ichnusaria* Ghiliani,1852; *corsicaria* Schawerda,1931; *saerdabensis* Wehrli,1943 Range (in code): MA PT ES Mu FR Co Sa Si IT IE GB BE NL LU DE CH AT PL CZ SK HU RO YU AL BG GR Cr TR Cc AZ GG IQ IR Mz GlS Fa Sse DK SE FI RU MD UA BY IL Pa LB Bsa Bmm Zah CY 01 05 08 14 15 16 17 22 31 33 34 36 37 42 44 45 46 48 52 56 57 59 60 61 65 77 81 01B 01D 01H 01G 01J 05A 05G 16A 31A 31Ab 31D 31K 31Ka 31Ka3 31L 31M 33A 33Ac 42B 44I 44Ic 46F 46G 46Gf 48L 52C 52G 52Gb 56F 56Fv 60H 60Hb 61K 61Ka 65A 65Am 65Am4 65F 65Fp 65Fz 65N 65Np 65Nm Prep. no: GP667♂ GP1332♂ GP2191♂ Aestival, nocturnal, uncommon, univoltine. It is found at the openings of woodland.

246. *Peribatodes umbrarius* (Hübner,[1809])

Fig. 24

Synonym(s): *umbraria* Hübner,[1809]; *vaucheri* Thierry-Mieg,1916 Original Reference: *Geometra umbraria* Hübner,[1809], Samml. eur. Schmett. 5: pl.65, fig.340. Type: Europa. Range (in code): MA DZ PT ES Mu FR Co Sa Si IT CH SK HU RO YU AL BG GR Cr TR IQ Brs IR Mz GlS Kh Fa Sse RU MD UA BY IL Pa Js LB Bsa CY 05 12 14 31 42 44 45 46 56 65 71 05A 12A 12Ac 31K 31Ka 31Ka5 42B 44Ic 46G 46Gf 46Gi 56F 65A 65An 65Ai 65Am 65Am1 65D 65Dh Aestival, nocturnal, uncommon, univoltine. It is found at the openings of woodland.

247. *Perizoma lugdunaria* (Herrich-Schäffer,1855)

Map 27

Synonym(s): *lugdunaria* Herrich-Schäffer,1855 Original Reference: *Larentia lugdunaria* Herrich-Schäffer,1855, Syst. Bearb. Schmett. Eur. 6(68): 139; *ibid.* 1856: pl.91 fig.565. Syntypes: France (Lyon). Range (in code): ES FR IT DE CH AT PL CZ SK HU RO BG LV LT RU UA TR Cc 36 65 73 65A 65Ai 73A 73Ad New to the fauna of Van Province!

248. *Protorhoe unicata* (Guenée,[1858])

Figs. 22, 23, Map 28

Synonym(s): *unicata* Guenée,[1858] Original Reference: *Melanippe unicata* Guenée,[1858], Hist. nat. Ins. Spec. gén. lépid. 10, Uran. & Phal. 2: 393-394. Type ♂: [Turquie, Amasya Prov.]: "Amasieh" (coll. Lederer). Range (in code): si YU MK AL BG GR TR RU IQ IR Fa Shr Sse Com Kz KG KK UZ TJ Fe UA Cm AZ Nv AM Cc GG Lag Kir Ord 01 05 14 21 33 38 42 45 56 65 70 71 80 81 01D 01G 01H 01J 05A 21L 21Lc 42B 56F 56Fa 65A 65Ai 65Am 65Am1 70C 70Cf 80B 80Bc Aestival, nocturnal, uncommon, univoltine.

249. *Pseudopanthera syriacata* (Guenée,1858)

Fig. 21

Synonym(s): *syriacata* Guenée,1858; *#syriacaria* Wiltshire,1958 Original Reference: *Venilia syriacata* Guenée,1858, [in] Boisdual & Guenée, Hist. nat. Insectes (Spec. gén. Lépid.) 9: 113, pl. 21 fig.2. Type ♂: [Lebanon]: "Beyrouth" (coll. Lederer). Range (in code): TR LB Bsa Bei IL Pa Car Js IQ Dia Ry Rwz Brs 01 13 21 30 31 33 44 46 47 56 65 73 80 01G 01J 13G 13Gö 13Gg 21N 21Nb 21Nc 30B 30Bd 30Bx 31K 31Ka 31Ka1 31M 46G 46Gf 46Gi 56F 65A 65Ai 65An 65Am 65Am1 65Am4 65As 65Au 65D 65Dl 65Dlc 65Dj 65Dr 65Drb 65Dt 65Du 65Dy 73A 73Aç 73Aç2 73E 73Eb 80B 80Bc Vernal, nocturnal-diurnal, common, univoltine.

250. *Ramitia kufrana* E.Seven,2016

Map 29

Synonym(s): *kufrana* E.Seven,2016 Original Reference: *Ramitia kufrana* E.Seven,2016, J. Kansas ent. Soc. 88 (4) (2015): 430-433, figs. Holotype ♂: SE Turkey, Siirt Province, Şirvan, Suluyazi 1320m 29 4 2013, leg. & coll. E.Seven. Range (in code): TR 56 65 73 56D 56Dd 56F 56Fa 65A 65Ai 73A 73Ad 73Ad2 A rare, vernal, nocturnal species. Described from Siirt (Şirvan). Later, the authors reported this species from Şırnak Province. The present record is the third provincial one in Turkey. New to the fauna of Van Province!

251. *Scotopteryx chenopodiata* (Linnaeus,1758)

Synonym(s): *chenopodiata* Linnaeus,1758; *limitata* Scopoli,1763; *zonata* Hufnagel,1767; *olivaceofasciata* Retzius,1783; *chenopodiaria* Haworth,1809; *mensuraria* sensu Duponchel,1829 Original Reference: *Phalaena chenopodiata* Linnaeus,1758, Syst. Nat. (Edn.10)1: Type(s): [Europa], in *Chenopodium*. Range (in code): PT ES FR IT MT IE GB BE NL LU DE CH AT PL CZ SK HU RO YU AL BG GR TR Cc GG AZ AM DK NO SE FI EE LV LT RU Ur Sb At Ya Am Us Prj Sh Ir Krl Mgd KG MN MD UA Cm BY 05 06 08 14 18 42 36 53 60 61 65 69 75 05A 06R 06Rb 42B 60H 60Hb 65A 65Ai 65B 65Bö 65Bx 65F 65Fp 65Fç 65Fz 65G 65Go 75F 75Fd Aestival, nocturnal-diurnal, common.

252. *Scotopteryx nebulata* (A.Bang-Haas,1907)

Fig. 25

Synonym(s): *nebulata* A.Bang-Haas,1907 Original Reference: *Ortholitha nebulata* A.Bang-Haas,1907, Dt. ent. Z., Iris 20: 82-83, Taf.iii fig.4. Type 1♂: [Türkei: Gaziantep]: "Aintab (Klein-Asien)". Range (in code): TR 27 51 62 65 51B 62E 65A 65Ab 65Aba An alpine species. Nocturnal, common, and univoltine. New to the fauna of Van Province!

253. *Scotopteryx vicinaria* (Duponchel,1830)

Synonym(s): *vicinaria* Duponchel,1830; *zumsteinaria* Harpe,1862; *illyriacaria* Schawerda,1919; *roesleri* Vojnits,1973 Original Reference: *Eubolia vicinaria* Duponchel,1830, [in] Godart & Duponchel, Hist. nat. lépid. Papillons Fr. 8 81): 188, pl.182 fig.4. Syntypes ♀♀: France, Digne. Range (in code): FR IT CH RO YU HV BG Sof GR TR Cc GG AZ AM MD UA BY LB IR Elb Th KG Ssn 05 06 13 31 37 46 56 65 05A 06R 06Rb 13G 13Gö 13Gg 13Gü 13Gs 13Gw 46G 46Gi 56F 65A 65Am 65Am4 65Aç 65D 65F 65Fp 65Fz 65N 65Np 65Nm

254. *Selenia lunularia* (Hübner,1788)

Synonym(s): *lunaria* [Denis & Schiffermüller],1775 nec Fabr.,1775; *lunularia* Hübner,1788; *delunaria* Hübner,[1799]; *sublunaria* Stephens,1831 Original Reference: *Phalaena lunularia* Hübner,1788, Beitr. Gesch. Schmett. 1 (3): 27, pl. 3 figs. T,1,2. Syntypes ♂♂: [Germany], Augsburg. Range (in code): MA Ifr TN PT ES FR Co Si IT IE GB BE NL LU DE CH AT CZ SK HU RO YU AL BG GR TR DK NO SE FI EE LV LT RU MD UA BY IR GlS CN Ui Ku 01 05 13 14 17 34 52 55 57 61 65 75 80 81 01G 05A 13G 13Gw 13Gs 52G 52Gb 55F 61K 61Kc 65A 65An 65F 65Fg 65Fr 65N 65Np6 65Nm 75F 75Fb Aestival, nocturnal, uncommon; a woodland species.

255. *Selidosema plumarium* ([Denis & Schiffermüller],1775)

Synonym(s): *#plumaria* [Denis & Schiffermüller],1775; *limbata* Rambur,1829. Original Reference: *Geometra plumaria* [Denis & Schiffermüller],1775, Ankündigung syst. Werkes Schmett. Wienergegend: 106. Type(s): [Austria]: Vienna district. Range (in code): ES Si IT CH AT CZ SK HU RO YU AL GR TR FI EE RU MD UA BY IR Kh 05 14 46 56 58 65 70 81 05A 14I 14Ib 56F 56Fz 58G 58Gg 65A 65Am 65Am4 65D 65Df 65F 65Fp 65Fz 70C 70Cb

256. *Siona lineata* (Scopoli,1763)

Figs. 26, 27, Map 30

Synonym(s): *lineata* Scopoli,1763; *dealbata* Linnaeus,1767; *duplicata* Fourcroy,1785 nec Fabr.,1775; *dealbaria* Hübner,[1799] Original Reference: *Phalaena lineata* Scopoli,1763, Entomologia Carniolica: 218. Type(s): [Slovenien]: Carniolia [Krain]. Range (in code): ES FR Co Si IT GB BE NL LU DE CH AT PL CZ SK HU RO YU AL BG GR TR Cc GG AM AZ DK NO SE FI EE LV LT RU MD UA BY KG TrA Aa CN Ui Ii Ku 05 13 16 18 22 39 60 65 75 05A 13G 13Gö 13F 16A 18F 60H 60Hb 65A 65An 65Aö 65Ai 65Au 65Am 65Am1 65F 65Fr 75F 75Fb It is found at the openings of woodland. A diurnal species, locally common, univoltine in summer.

257. Stamnodes depeculata (Lederer,1870)**Map 31**

Synonym(s): *depeculata* Lederer,1870 Original Reference: *Cidaria depeculata* Lederer,1870, Annls Soc. ent. Belg. 13: 40,50-51, pl.2 fig.6. Syntypes: [Georgia]: "Transcaucasie". Range (in code): GR Prn TR Cc GG Da RU Kc Tcb Kb IR Lo AZ CN Ts Kno Sz T-T Ti IR Elb Kdv Nss Vdb Dam Mz 25 65 69 76 25C 25Ca 65A 65Ab 65Aba 65F 65Fw 65Fz 69B 69Ba 76C Prep. no: GP2032[♂] An alpine species. Second locality in Van Province.

258. Stegania dilectaria (Hübner,1790)**Fig. 28**

Synonym(s): *dilectaria* Hübner,1790; *commutataria* Hübner,[1819]; *commutata* Freyer,[1832] Original Reference: *Phalaena dilectaria* Hübner,1790, Beitr. Gesch. Schmett. 2(3): 76, Taf.4 fig.W. Range (in code): DE AT CZ SK HU RO YU BG GR TR Cc AZ RU MD UA BY CN Ui Ju 01 14 22 34 42 44 46 55 56 60 65 71 81 01B 01D 01H 01J 42B 44E 44Eh 55F 56F 60H 60Hb 65A 65An 65Ai 65F 65Fg

259. Synopsis sociaria (Hübner,[1799])

Synonym(s): *sociaria* Hübner,[1799]; *staudingeraria* Martorell,1874; *acuta* Wehrli,1926 Original Reference: *Geometra sociaria* Hübner,[1799], Samml. eur. Schmett. 5: pl.29, fig.155. Type: Europa. Range (in code): PT ES FR Co Sa Si IT NL DE CH AT PL CZ SK HU RO YU AL BG GR TR Cc AZ AM IR GlS RU Ur At MD UA BY CN Ui Ku 14 16 17 25 33 34 42 52 65 16A 42B 33G 52G 52Gb 65A 65An Aestival, nocturnal, uncommon; a woodland species. New to the fauna of Van Province!

260. Thalera fimbrialis (Scopoli,1763)

Synonym(s): *fimbrialis* Scopoli,1763; *thymiararia* Linnaeus,1767; *bupleuraria* [Denis & Schiffermüller]1,775; *albaria* Esper,[1801]; *magnata* Fuchs,1903; *obsoleta* Skala,1913; *major* Warnecke,1930; *ochracea* Kolossow,1936; *approximata* Lempke,1949; *tangens* Lempke,1949; *fasciata* Hartweg,1951 Original Reference: *Phalaena fimbrialis* Scopoli,1763, Entomologia Carniolica: 216. Type(s): [Slovenien]: Carniolia [Krain]. Range (in code): PT ES FR Co Si IT GB BE NL LU DE CH AT PL CZ SK HU RO YU AL BG GR TR AZ AM GG Lag Kir Hkd Cc DK NO SE FI EE LV LT RU MD UA BY KK Ik Ax CN Ui Kun Au IR Elb Th Fa Com Kz 05 13 16 17 22 30 31 33 34 41 42 46 51 56 58 62 65 75 81 05A 13A 13Ab 13Ax 13D 13G 13Gy 16A 31K 31Ka 31Ka5 42B 56F 58N 65A 65Ai 65Am 65Am1 65B 65Bo 65Bx 65D 65Dc 65Dc1 65Df 65F 65Fb 65Fd 65Fg 65Fz 65N 65Nr2 65Nm Prep. no: GP2341[♂]

261. Thetidia persica Hausmann,1996**Fig. 29**

Synonym(s): *persica* Hausmann,1996 Original Reference: *Thetidia (Antonechloris) persica* Hausmann,1996, Nota lepid. 19 (1/2): 27-29, figs. Holotype ♀: Iran: Elburs mts.c.s., Tacht i Suleiman, Sardab Tal (Vandarbad), 2500-2700m, leg. Pfeiffer & Forster (ZSM). Range (in code): IR Elb Mz Ak Ab TR 13 30 46 58 65 13A 13Ab 13Ax 13G 13Gü 13Gw 30B 30Bd 30Bc1 30Bx 65A 65Am 65Am1 65B 65Bo 65Bx 65D 65Df 65Dh 65Dg 65Dga 65F 65Fg 65Fp 65Fz 65N 65Np 65Nm

262. Xanthorhoe fluctuata (Linnaeus,1758)**Map 32**

Synonym(s): *fluctuata* Linnaeus,1758; *fibulata* Hufnagel,1767; *cinerata* Fourcroy,1785 nec Fabr.,1781; *costovata* Haworth,1809; *fluctuaria* Boisduval,1840; *multistriga* Oberthür,1910 Original Reference: *Phalaena fluctuata* Linnaeus,1758, Syst. Nat. (Edn.10)1: 527. Type(s): [Europa]. Range (in code): MA DZ Clo Cst TN ES Mu FR Co Si IT IE GB BE NL LU DE CH AT PL CZ SK HU RO YU AL BG GR Cr Rd CY TR Cc GG AM AZ IQ IR Fa DK NO SE FI EE LV LT RU Kol K-R Sb Am Kmt Sh MD UA Cm BY IL Pa Jf LB Bsa KK KG CN Ui Kön KP KR JP 01 05 06 14 16 17 21 22 31 33 34 39 42 46 48 49 51 52 56 58 65 73 01G 05A 16A 21N 21Nh 31D 31K 31Ka 42B 48L 49F 49Fb 52G 52Gb 56F 58N 65A 65Ai 65Am 65Am4 65F 65Fr 65Fu 73A 73Ac 73E 73Eb

References

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 Kemal, M. & A.Ö.Koçak, 2016b, On the Noctuidae fauna of Bahçesaray district (Van Province, East Turkey). *Priamus* 14 (1): 1-74, 30 figs., 56 maps.²
 Kemal, M., Koçak, A.Ö. & N.Ecer, 2016, Second contribution to the knowledge of the Pterygota fauna of Bahçesaray (Van Province, East Turkey). *Cesa News* 126: 1-11, 1 fig.
 Kemal, M. Hakan, E., Koçak, A.Ö. & H.Tekin, 2016, *Polysarcus elbursianus* in Van Province (East Turkey) (Orthoptera, Tettigoniidae). *Cesa News* 127: 1-10, 25 figs., 1 tab.

² Freely downloadable from ResearchGate:

https://www.researchgate.net/publication/309801570_On_the_Noctuidae_fauna_of_Bahcesaray_district_Van_Province_East_Turkey_Lepidoptera

Figures from nature

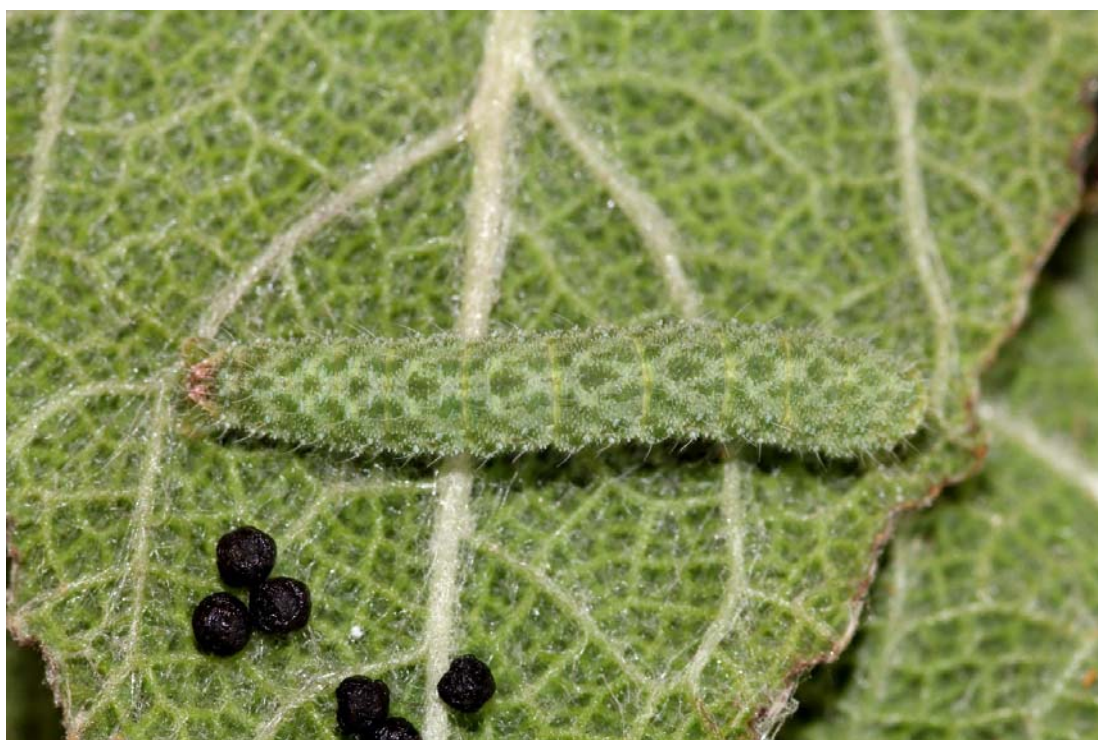


Fig. 1 – *Chesistege korbi*, grown caterpillar on Lamiaceae leaf. East Turkey, Bitlis Prov., Tatvan, Koruklu, Saruhan Mt., 2000m, 04 06 2011, M. Kemal (Cesa)



Figs. 2,3 – *Chesistege korbi*, pupal stage (left). East Turkey, Bitlis Prov., Tatvan, Koruklu, Saruhan Mt., 2000m, 12 06 2011; adult stage (right), emerged on 18 10 2011, M. Kemal (Cesa)



Figs. 4,5 – *Chesistege korbi*, resting male (left) from Van Prov., Tuşba, Tutumlu, Karaağaç mezra 1685m, 28 09 2013, same species (right) from Van Prov., Gevaş, Artos Mt. 1950m 30 09 2013, M Kemal (Cesa)



Figs. 6,7 – *Aplocera plagiata* (left) from Mukus valley on 4 6 2016; *Catarhoe permixtaria* (right) from Mukus valley, on 24 6 2016, M. Kemal (Cesa)



Figs. 8,9 – *Colotis pennaria* (left) from Vasting, on 23 10 2016; *Crocallis loebeli* (right) from Paşaköy on 2 10 2016, M. Kemal (Cesa)



Figs. 10,11 – *Dasycorsa modesta* (left) from Vasting, on 9 5 2016; *Docirava mundulata* (right) from Mukus valley on 3 10 2016, M. Kemal (Cesa)



Figs. 12,13 – *Dyscia innocentaria* (left) from Vasting, on 5 6 2016; *Eilicrinia cordiaria* (right), from Paşaköy 26 5 2016, M. Kemal (Cesa)



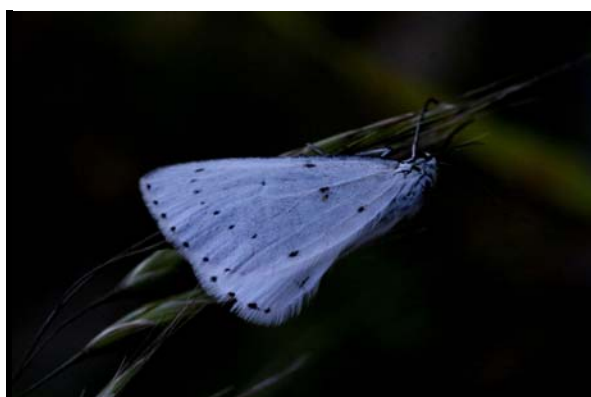
Figs. 14,15 – *Eupithecia gratiosata* (left) from Mukus valley on 4 6 2016; *Eupithecia gueneata* (right) from Mukus valley, on 24 6 2016, M. Kemal (Cesa)



Figs. 16,17 – *Heliomata glarearia* (left); *Lithostege palaestinensis* (right) both from Mukus valley, on 13 6 2016, M. Kemal (Cesa)



Figs. 18,19 – *Nebula* sp.1 (left) from Mukus valley on 3 10 2016; *Odontognophos zacharius* (right) from Paşaköy on 2 10 2016, M Kemal (Cesa)



Figs. 20,21 – *Orthostixis cribraria* (left), *Pseudopanthera syriacata* (right) both from Mukus valley, on 13 6 2016, M. Kemal (Cesa)



Figs. 22,23 – *Protorhoe unicata*, at rest (left) from Paşaköy, on 3 6 2016; same species, captured by its predator, Thomisidae spider on Anthemis flower (right), from Mukus valley on 4 6 2016, M. Kemal (Cesa)



Figs. 24,25 – *Peribatodes umbrarius*, at rest (left) from Paşaköy, on 3 6 2016; *Scotopteryx nebulata*, at rest (right), from Krapet Pass 2820m on 7 8 2016, M. Kemal (Cesa)



Figs. 26,27 – *Siona lineata* at rest (left, right) both from Vasting, on 26 5 2016 and 5 6 2016, respectively, M. Kemal (Cesa)



Figs. 28,29 – *Stegania dilectaria* (left) from Vasting, on 5 6 2016; *Thetidia persica* (right) from Mukus Valley on 24 6 2016, M. Kemal (Cesa)

Some figures from the Cesa Collection



Figs. 30,31 - *Chesistege korbi* (left), for its genitalia, see Fig. 34, GP2458♂; *Eupithecia venosata* (right), its genitalia and tympanal organ, see Figs. 40, 54-55, GP2455♂; M. Kemal (Cesa)



Figs. 32,33 - *Nebula* sp. 1 (left), for its genitalia and tympanal organ, see Figs. 45, 64-65, GP2413♂; *Nebula* sp. 2 (right), for its genitalia and tympanal organ, see Figs. 46, 66-67, GP2462♂ M. Kemal (Cesa)

Figures of Male Genitalia



Fig. 34 - *Chesistege korbi*, GP2458♂, Van Prov., Bahçesaray, M. Kemal (Cesa).



Fig. 35 - *Coenoteophria ablutaria*, GP2346♂, Van Prov., Bahçesaray, M. Kemal (Cesa). Male genitalia, abdominal skin and tympanal organ. See also Figs. 48, 49.

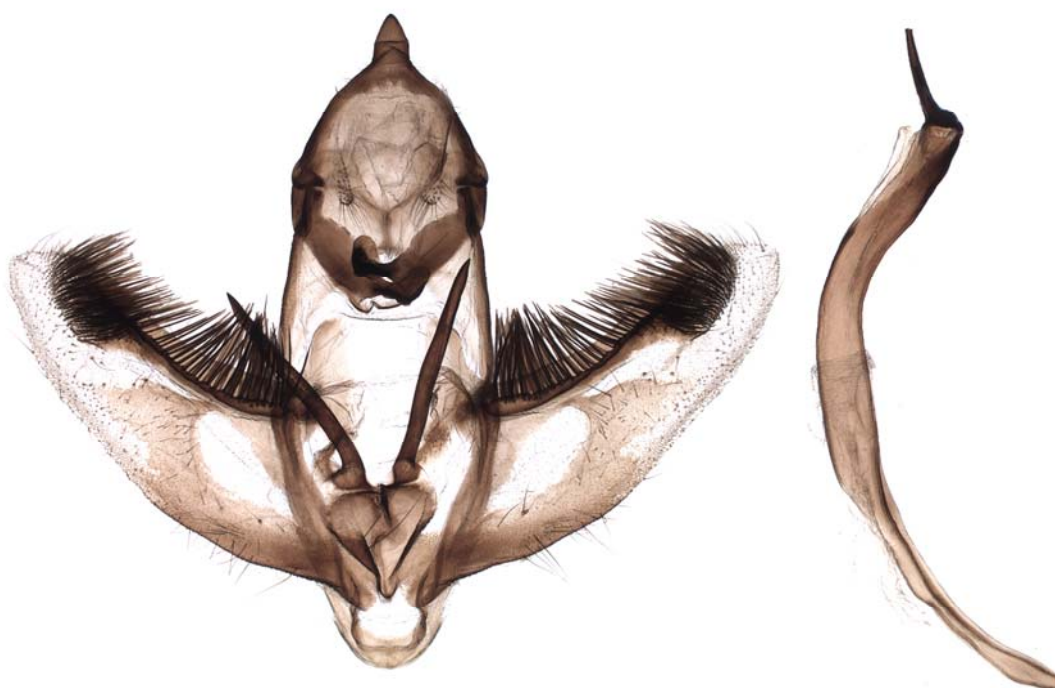


Fig. 36 - *Crocallis loebeli*, GP2415♂, Van Prov., Bahçesaray Paşaköy (65Ai) 1620m, 2 10 2016, M Kemal (Cesa). See also Figs. 50, 51.



Fig. 37 - *Drepanopterula limaria*, GP2441♂, Van Prov., Bahçesaray, M Kemal (Cesa). See also Figs. 52, 53.

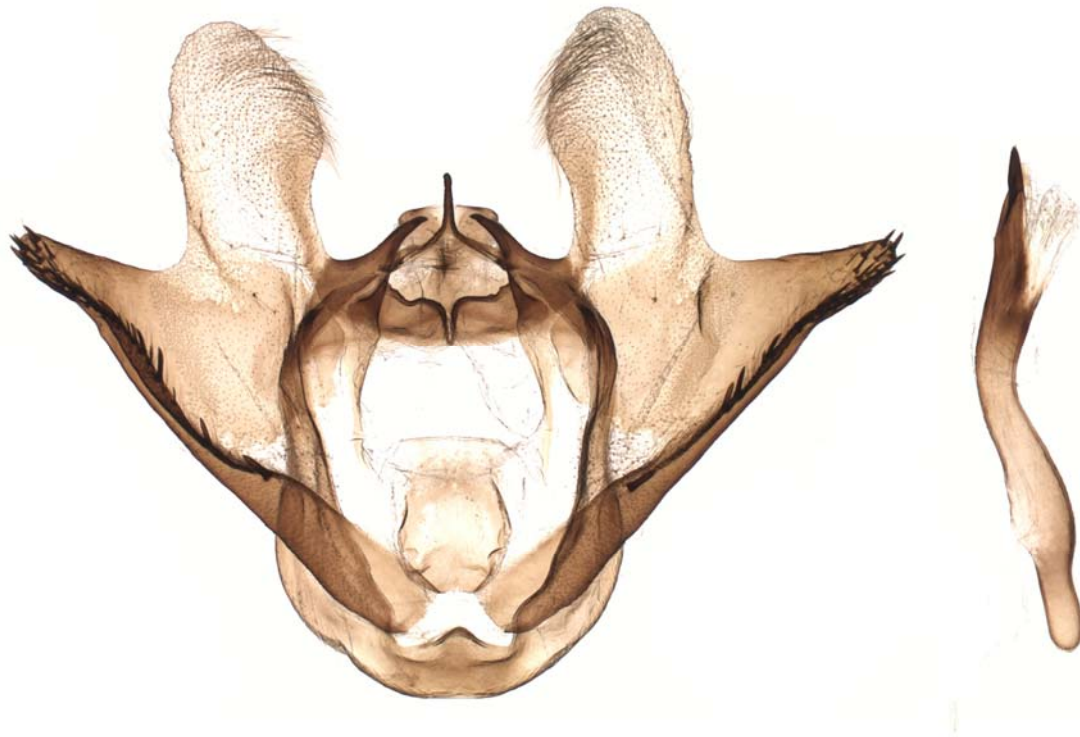


Fig. 38 – *Dyscia innocentaria*, GP2358♂, Van Prov., Bahçesaray, M Kemal (Cesa).

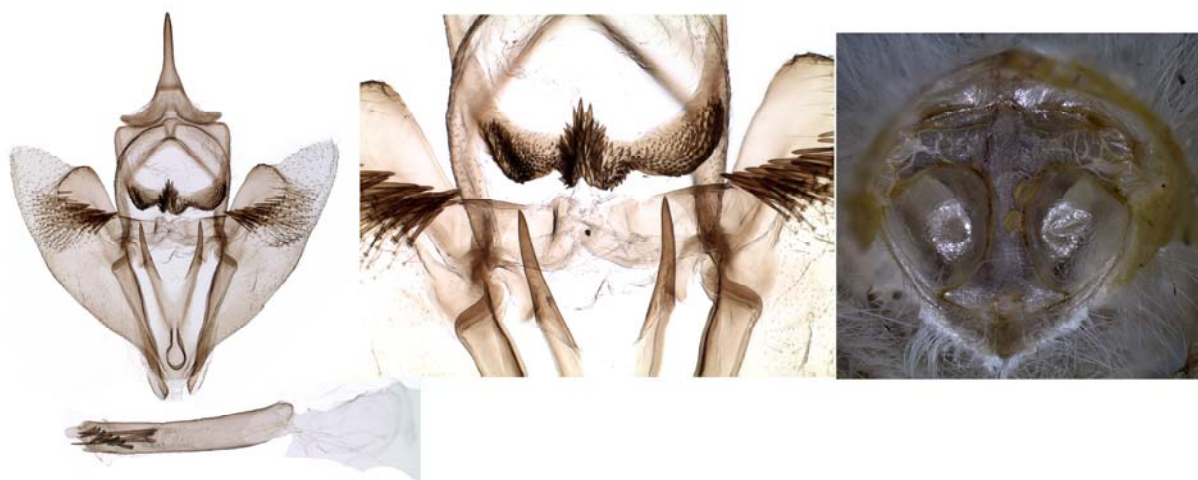


Fig. 39 - *Ennomos quercarius*, GP2432♂, Van Prov., Bahçesaray, Upper Mukus Valley (65Am4), M. Kemal (Cesa). Male genitalia (left & middle), tympanal organ (right).

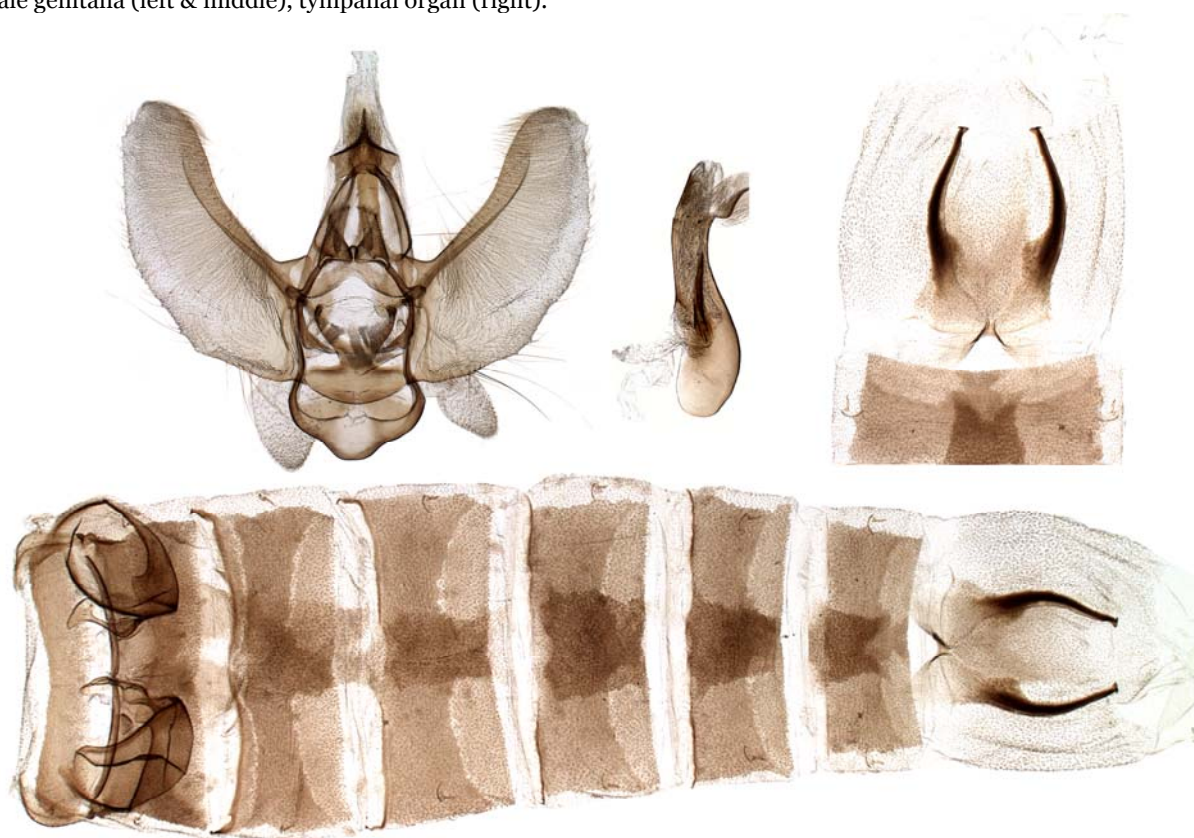


Fig. 40 - *Eupithecia venosata*, GP2455♂, Van Prov., Bahçesaray, Upper Mukus Valley (65Am4), M. Kemal (Cesa). Male genitalia (left & above). Tympanal organ and abdominal skin (below). See also Figs. 54, 55.



Fig. 41 - *Hyposcotis certhiata*, GP2412♂, Van Prov., Bahçesaray Krapet Pass (65Aba), M. Kemal (Cesa). See also Figs. 56, 57.



Fig. 42 - *Hyposcotis libanotica*, GP2350, Van Prov., Bahçesaray, M.Kemal (Cesa). See also Figs. 58, 59.

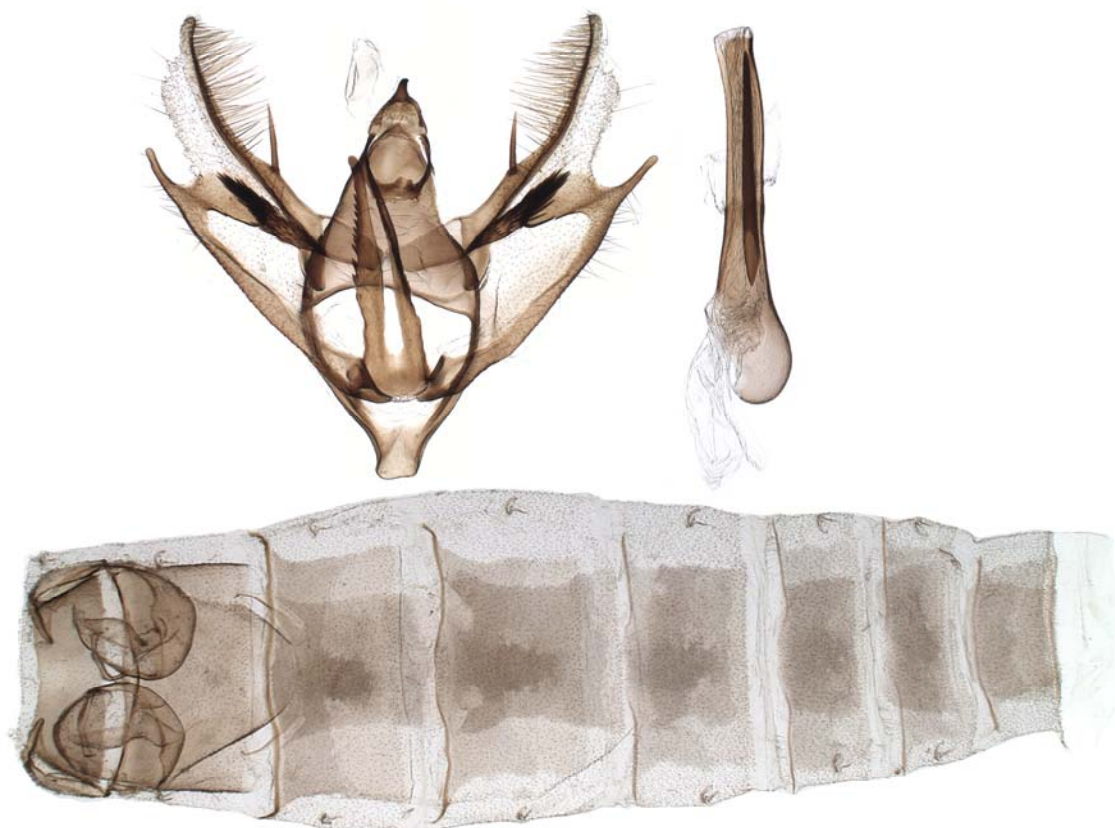


Fig. 43 - *Hyposcotis* sp. GP2349♂, Van Prov., Bahçesaray, M Kemal (Cesa). Male genitalia, and abdominal skin with the tympanal organ. See also Figs. 60, 61.



Fig. 44 - *Lithostege palaestinensis*, GP2347♂, Van Prov., Bahçesaray, M. Kemal (Cesa). Male genitalia, and abdominal skin with tympanal organ. See also Figs. 62, 63.



Fig. 45 - Nebula sp.1, GP2413♂, Van Prov., Bahçesaray, M. Kemal (Cesa). See also Figs. 64, 65.



Fig. 46 - Nebula sp.2, GP2462♂, Van Prov., Bahçesaray, Upper Mukus valley 1840m (65Am4), 25 5 2016, M. Kemal (Cesa). See also Figs. 66, 67.



Fig. 47 - *Nychiodes divergaria*, GP2357♂, Van Prov., Bahçesaray, Upper Mukus valley (65Am1), M. Kemal (Cesa). See also Figs. 68, 69.

Tympanal organs



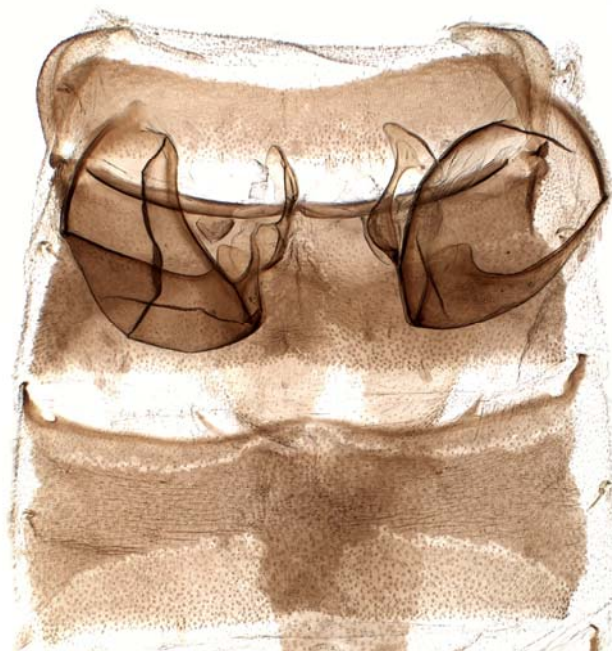
Figs. 48, 49 - *Coenoteophria ablutaria*, GP2346♂, Van Prov., Bahçesaray, M. Kemal (Cesa). Tympanal organ, before preparation (left), and the abdominal skin with tympanal organ (right).



Figs. 50,51 - *Crocallis loebeli*, GP2415♂, Van Prov., Bahçesaray Paşaköy (65Ai) 1620m, 2 10 2016, M Kemal (Cesa). Tympanal organ, before preparation (left), and the abdominal skin with tympanal organ (right).



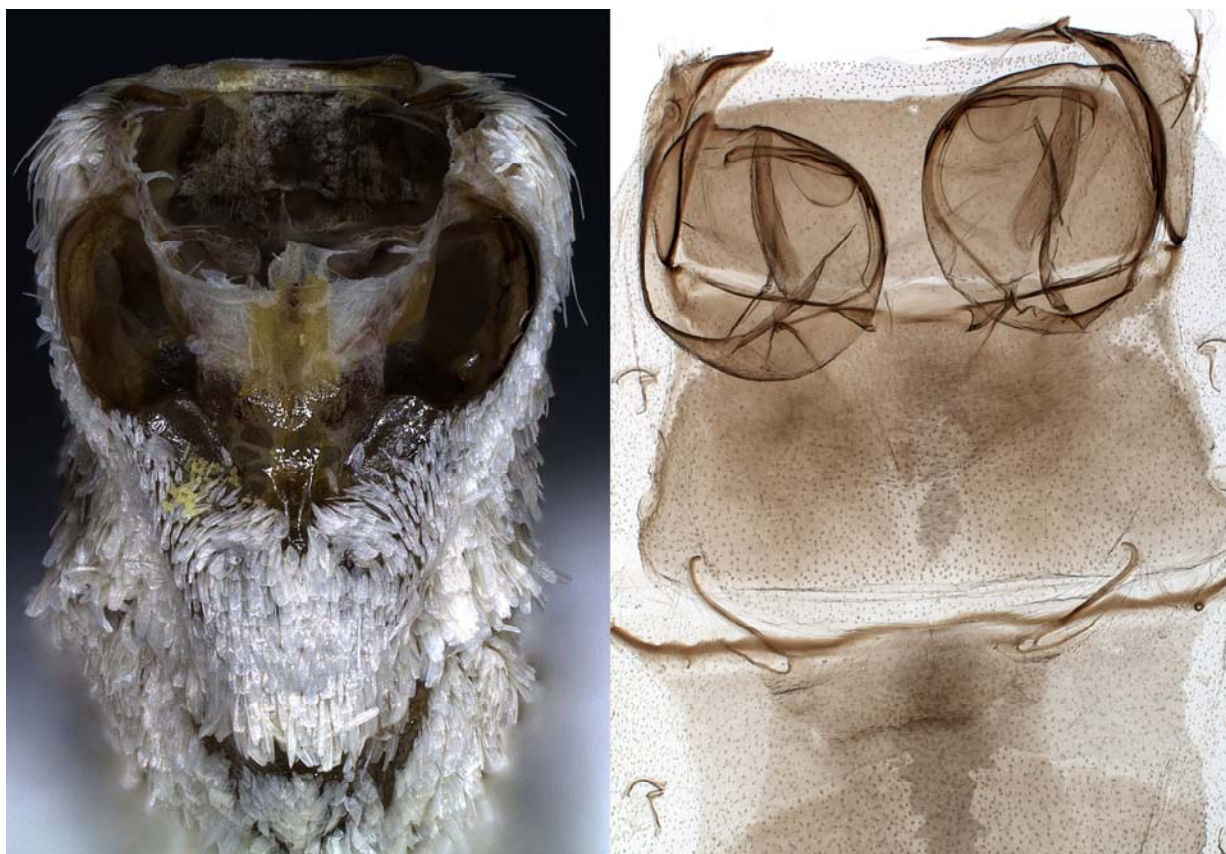
Figs. 52,53 - *Drepanopterula limaria*, GP2441♂, Van Prov., Bahçesaray, M Kemal (Cesa). Tympanal organ, before preparation (left), and the abdominal skin with tympanal organ (right).



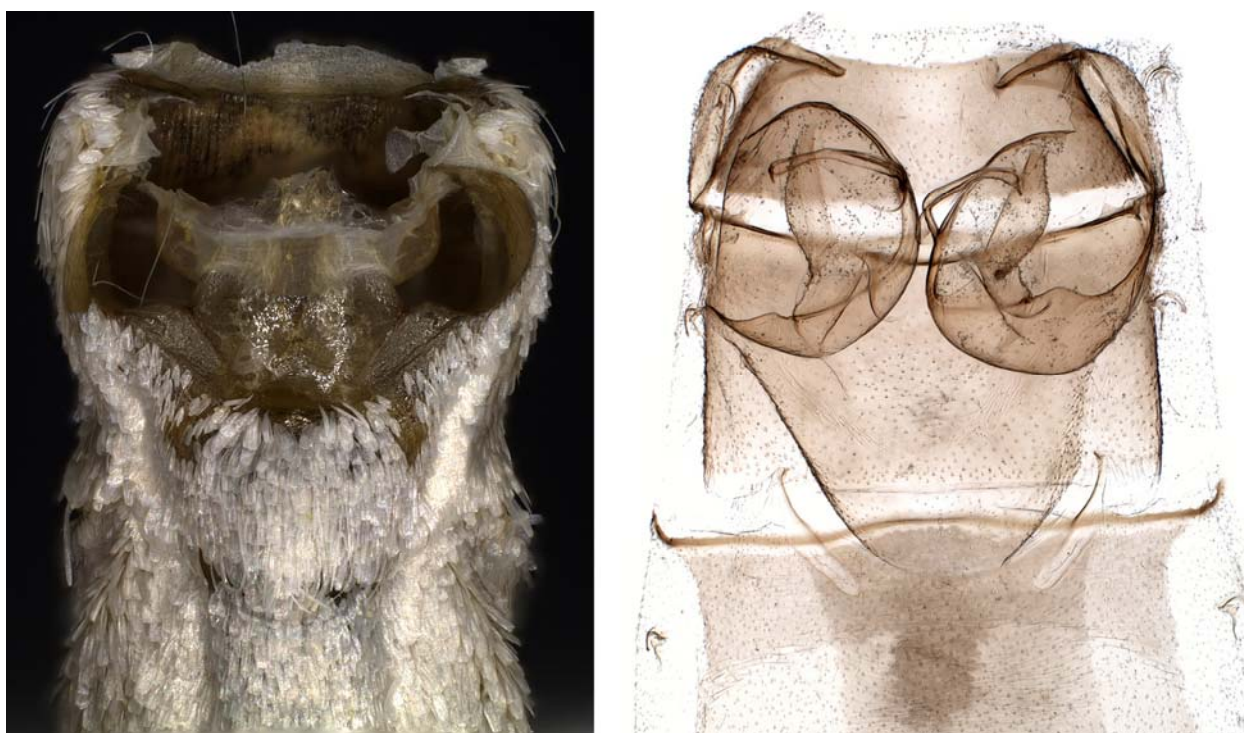
Figs. 54,55 – *Eupithecia venosata*, GP2455♂, Van Prov., Bahçesaray, M Kemal (Cesa). Tympanal organ, before preparation (left), and the abdominal skin with tympanal organ (right).



Figs. 56,57 - *Hyposcotis certhiata*, GP2412♂, Van Prov., Bahçesaray Krapet pass (65Aba), M. Kemal (Cesa). Tympanal organ, before preparation (left), and the abdominal skin with tympanal organ (right).



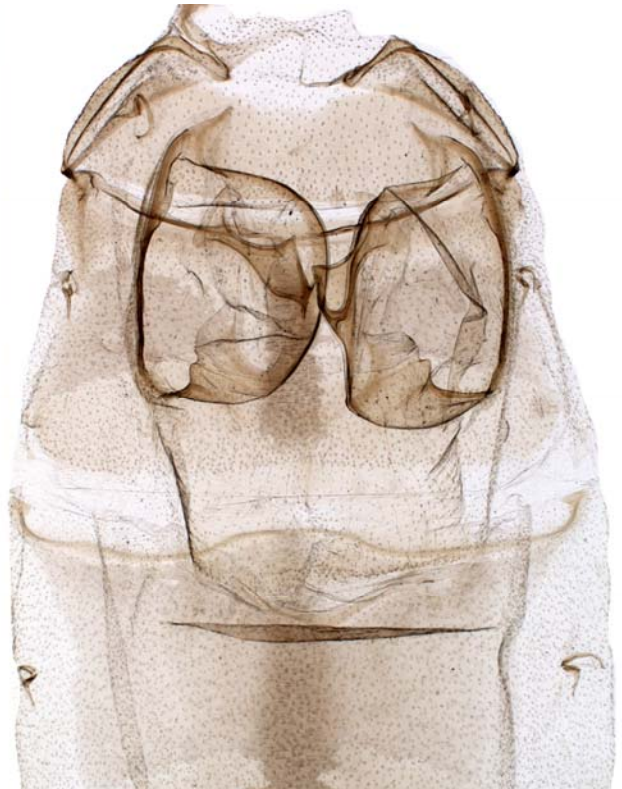
Figs. 58,59 - *Hyposcotis libanotica*, GP2350♂, Van Prov., Bahçesaray, M.Kemal (Cesa). Tympanal organ, before preparation (left), and the abdominal skin with tympanal organ (right).



Figs. 60,61 - *Hyposcotis* sp. GP2349♂, Van Prov., Bahçesaray, M Kemal (Cesa). Tympanal organ, before preparation (left), and the abdominal skin with tympanal organ (right).



Figs. 62,63 - *Lithostege palaestinensis*, GP2347♂, Van Prov., Bahçesaray, M. Kemal (Cesa). Tympanal organ, before preparation (left), and the abdominal skin with tympanal organ (right).



Figs. 64,65 - *Nebula* sp.1, GP2413♂, Van Prov., Bahçesaray, M. Kemal (Cesa). Tympanal organ, before preparation (left), and the abdominal skin with tympanal organ (right).

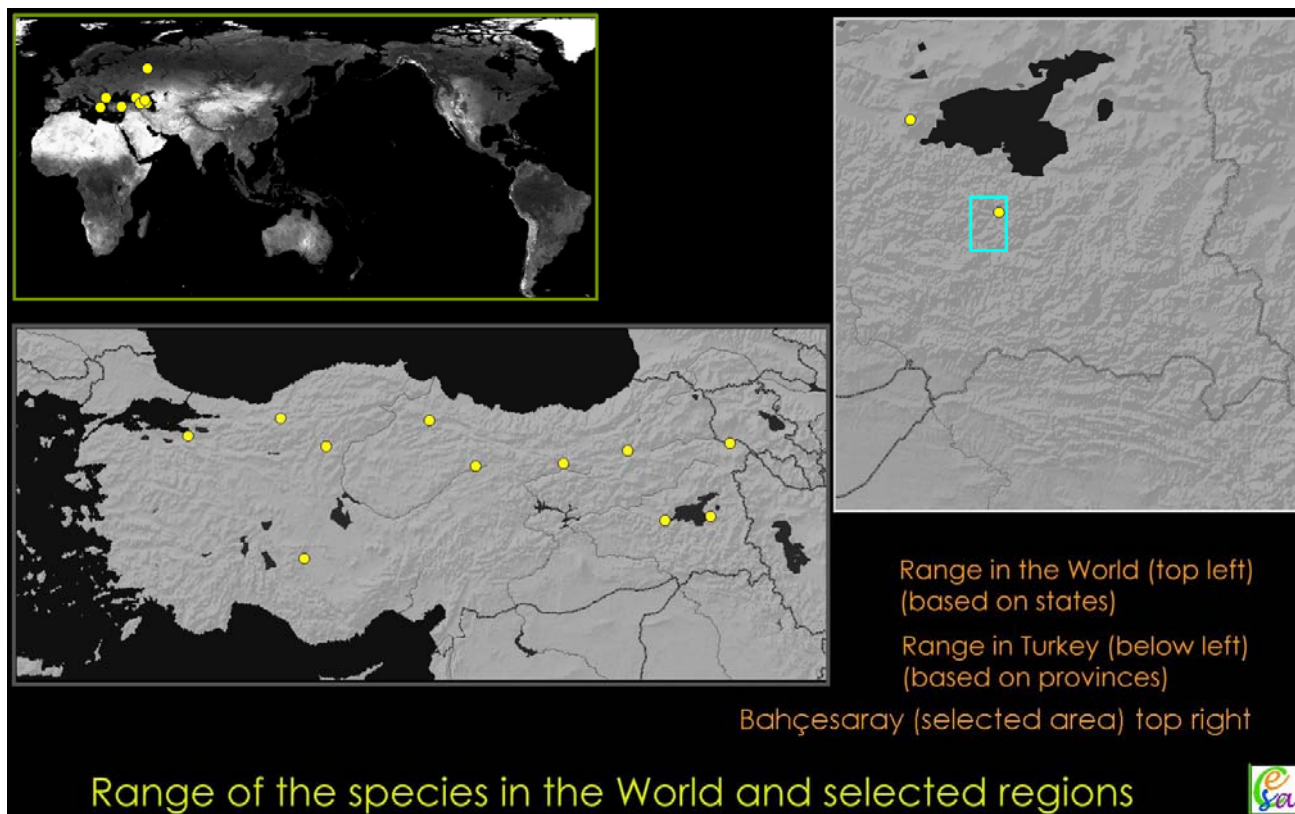


Figs. 66,67 - *Nebula* sp.2, GP2462♂, Van Prov., Bahçesaray, M. Kemal (Cesa). Tympanal organ, before preparation (left), and the abdominal skin with tympanal organ (right).

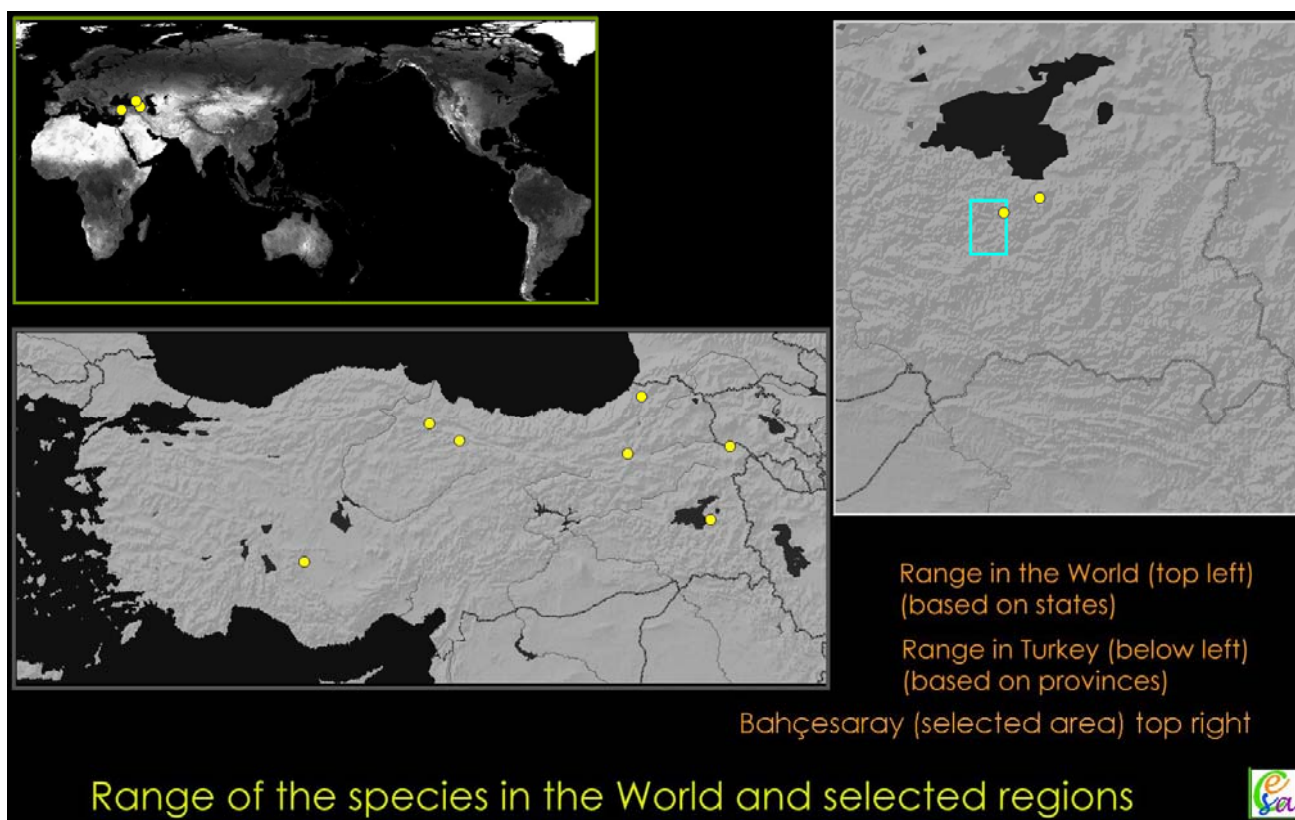


Figs. 68,69 - *Nychiodes divergaria*, GP2357♂, Van Prov., Bahçesaray, M. Kemal (Cesa). Tympanal organ, before preparation (left), and the tympanal organ (right).

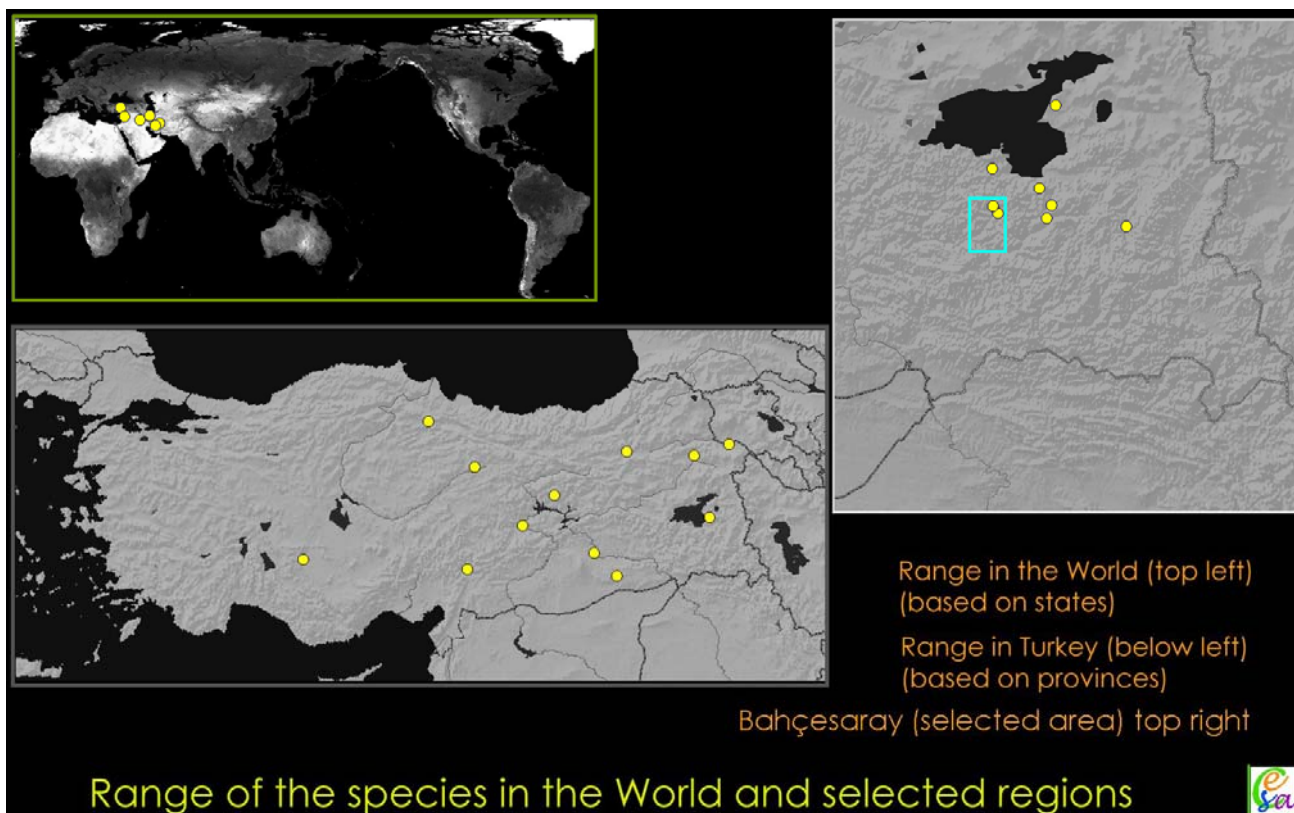
Maps



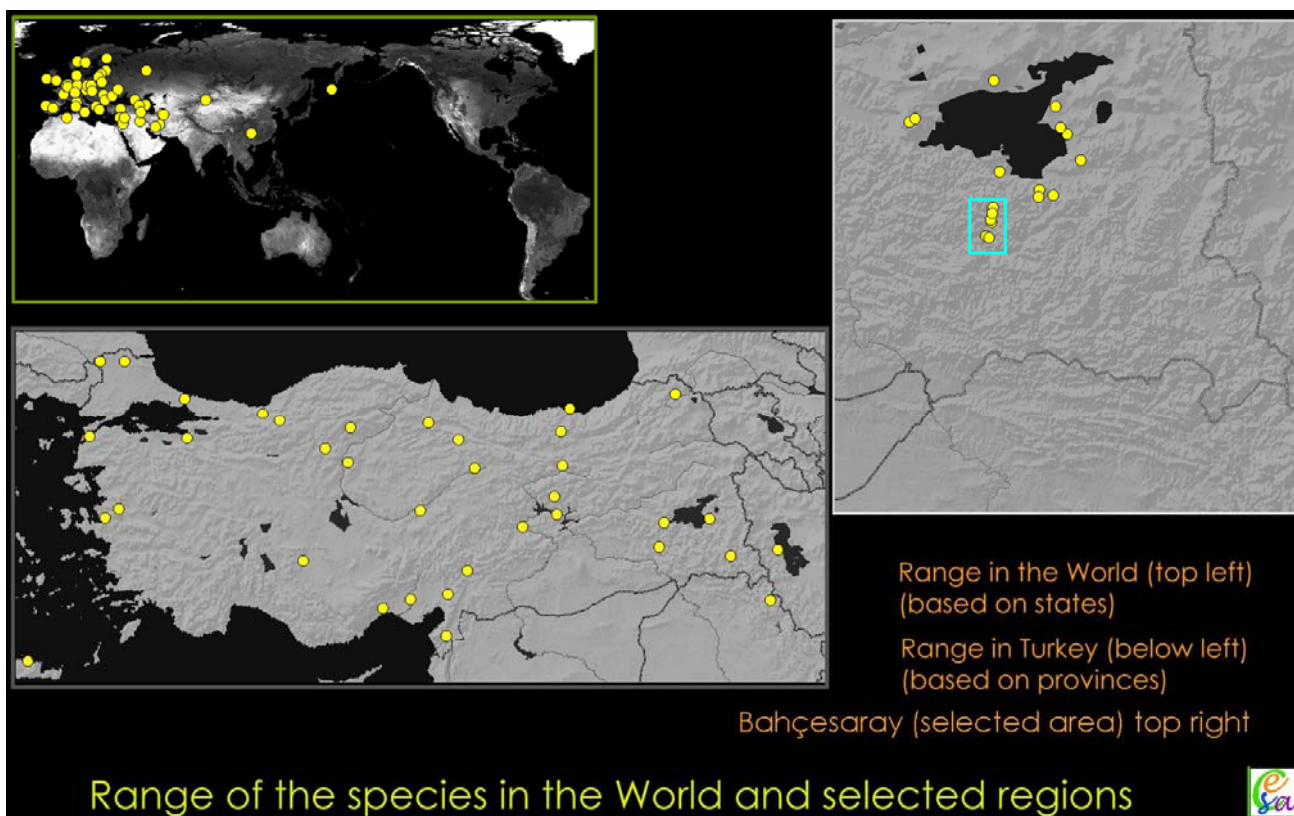
Map 1 - *Aplocera columbata*



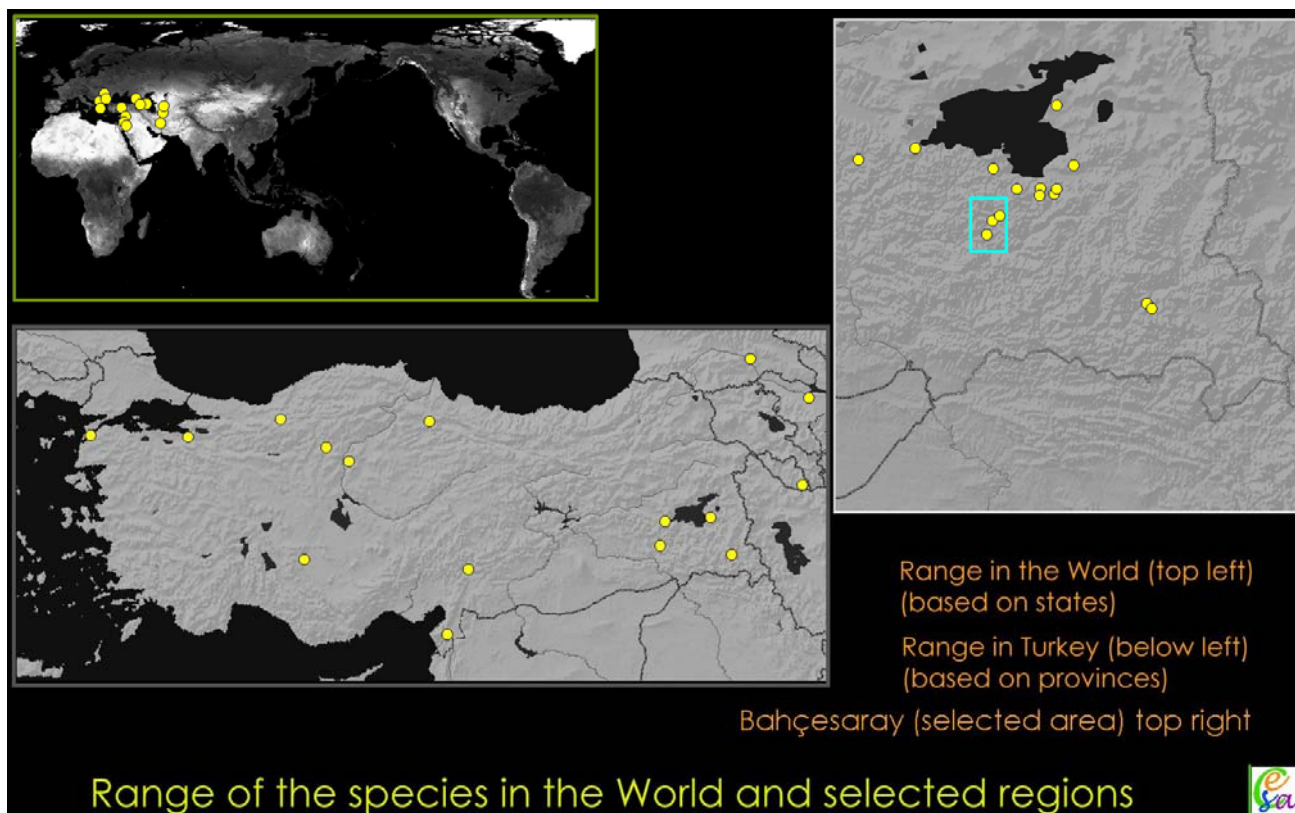
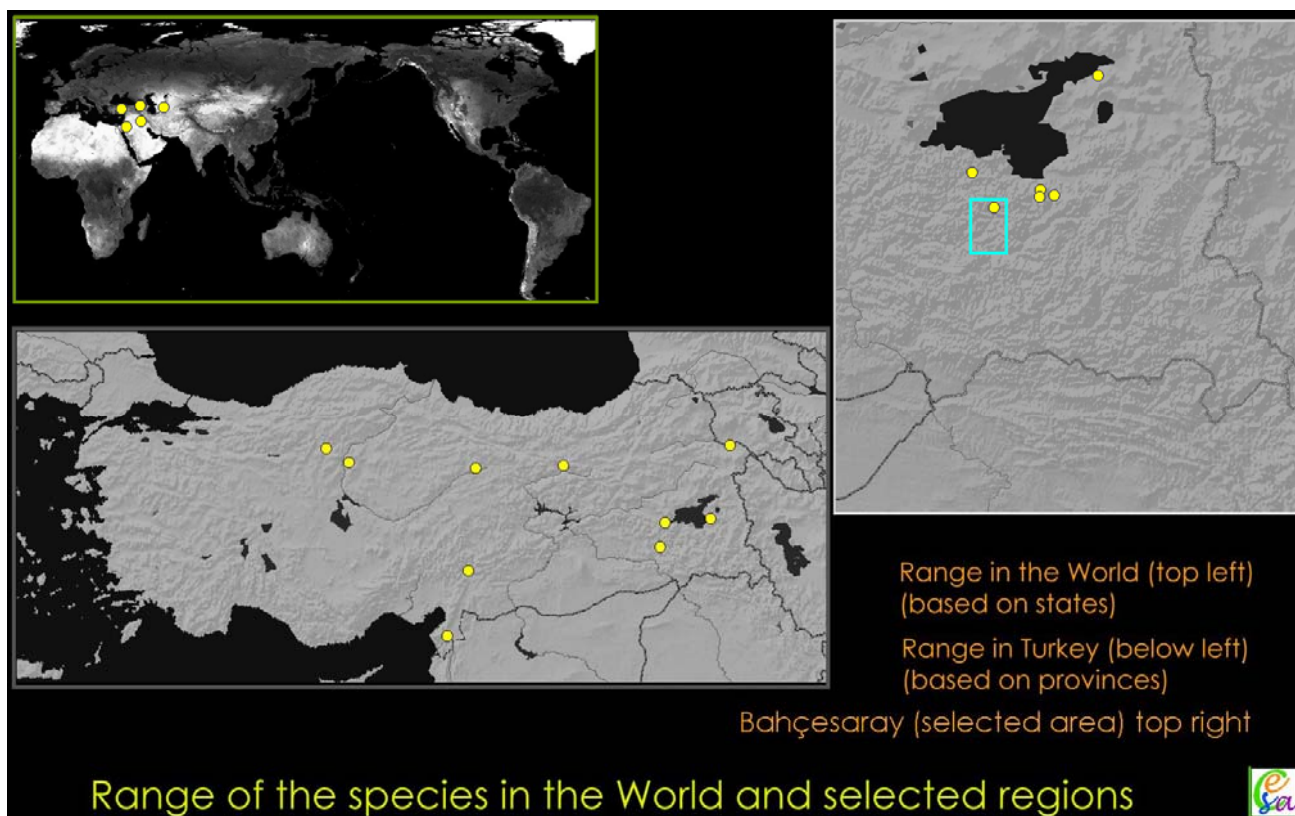
Map 2 - *Aplocera numidaria*

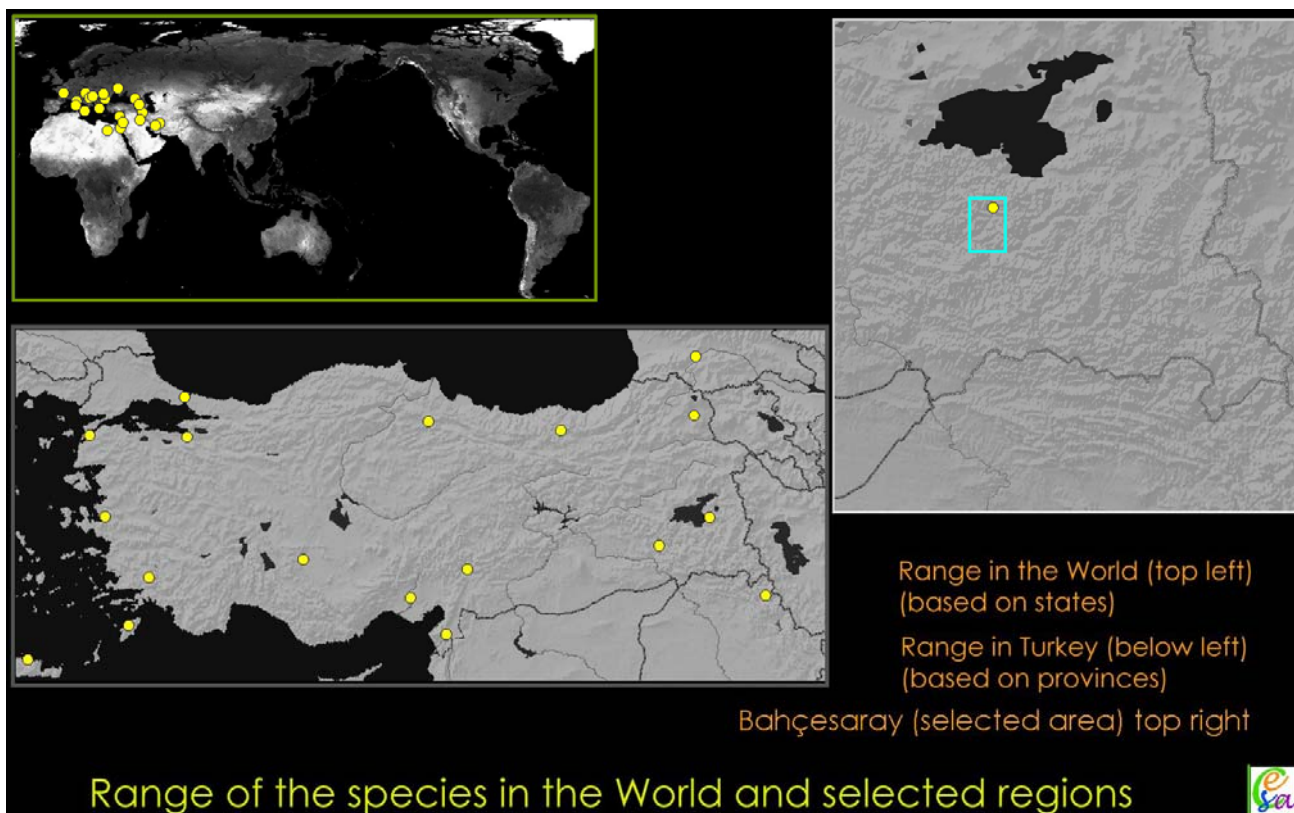
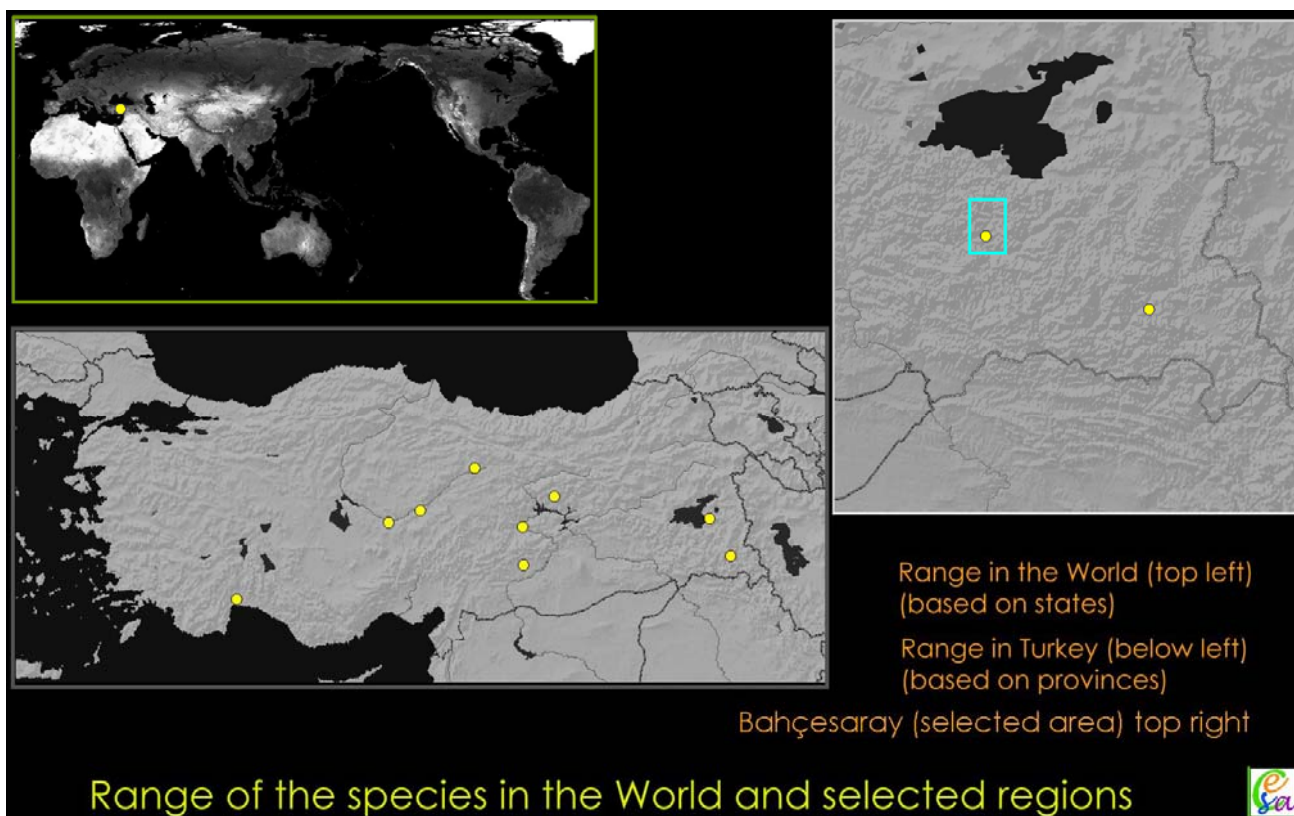


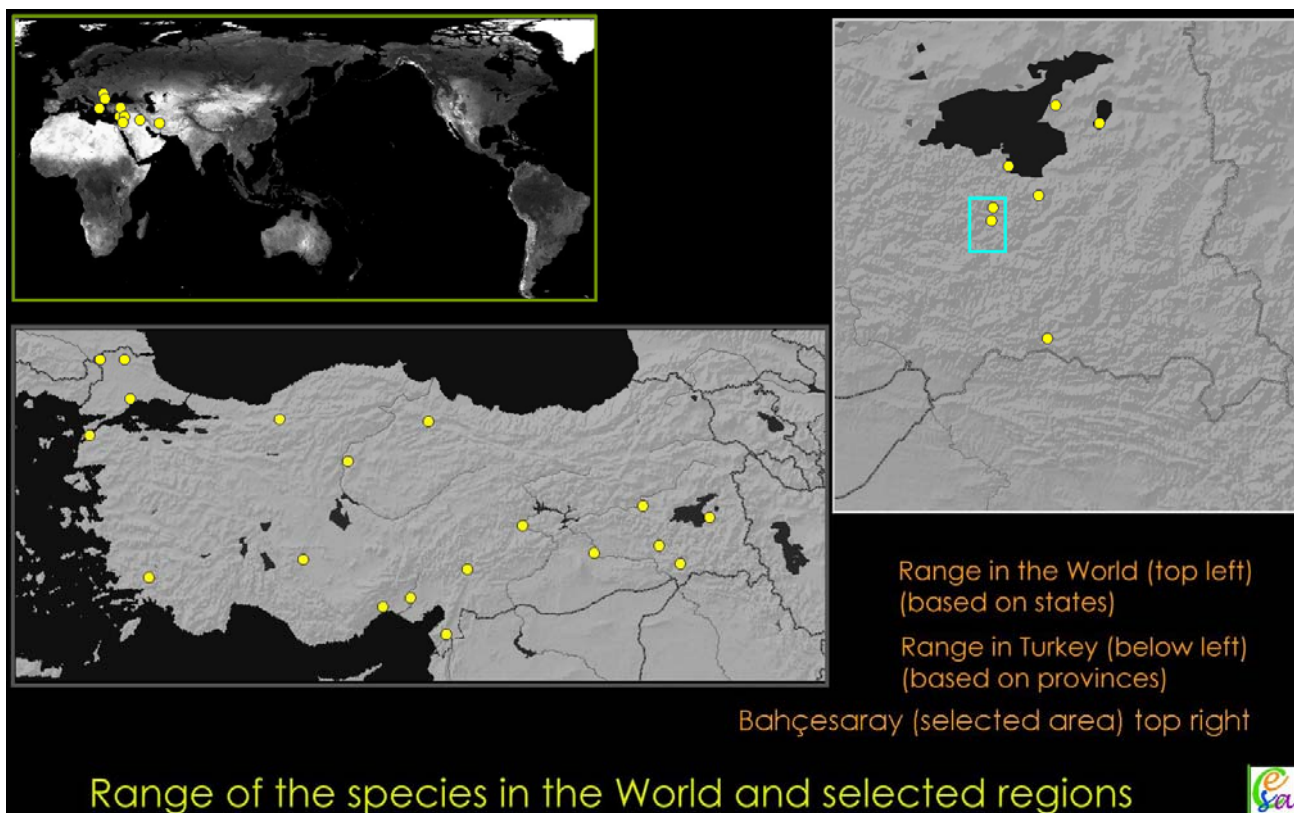
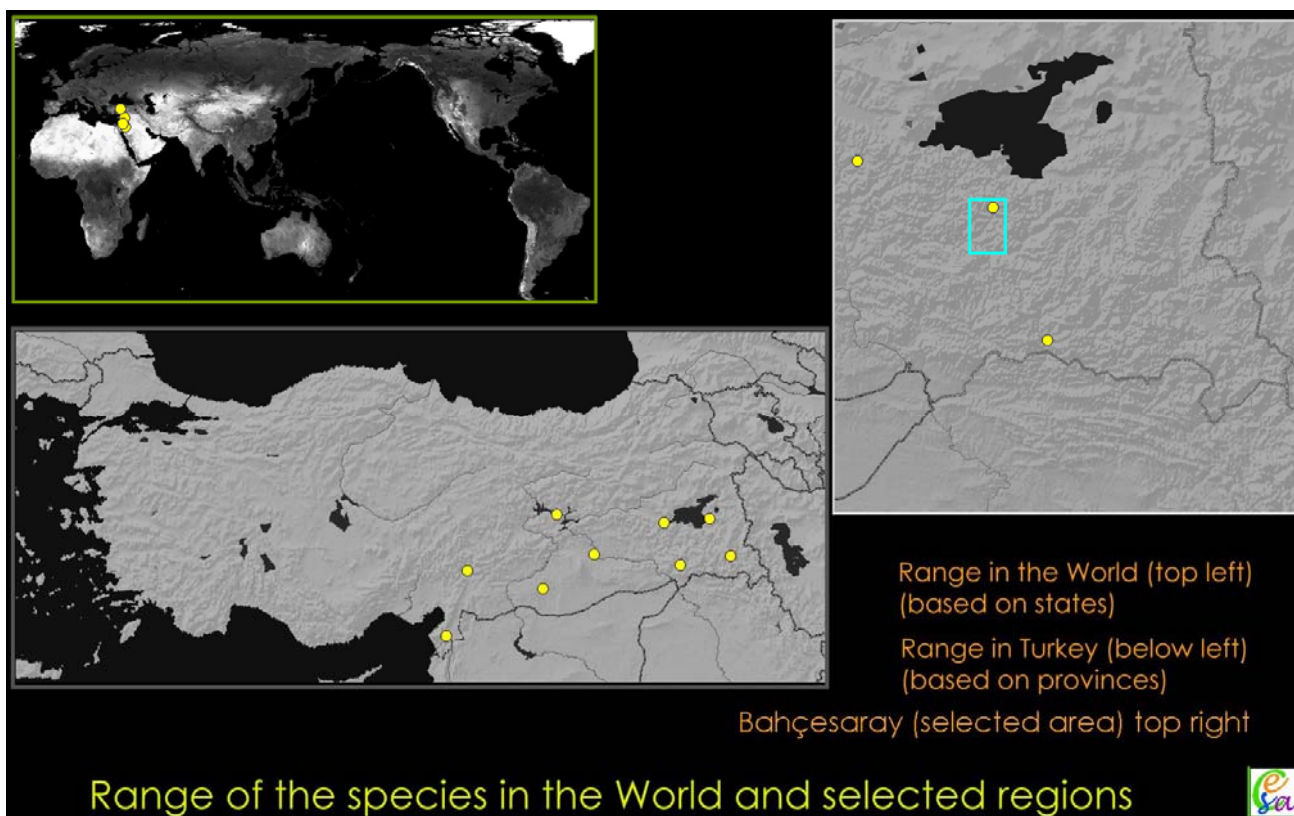
Map 3 - *Aplocera obsitaria*

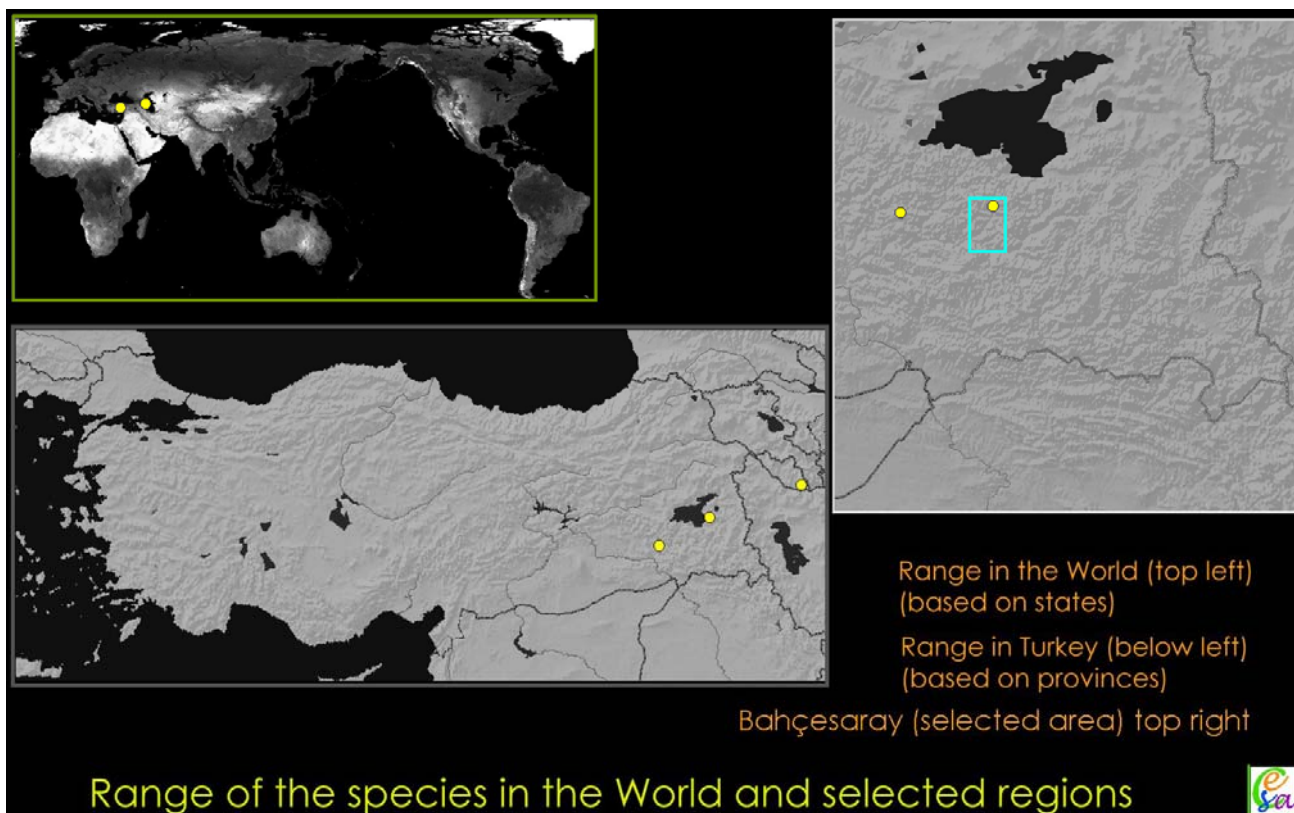


Map 4 - *Aplocera plagiata*

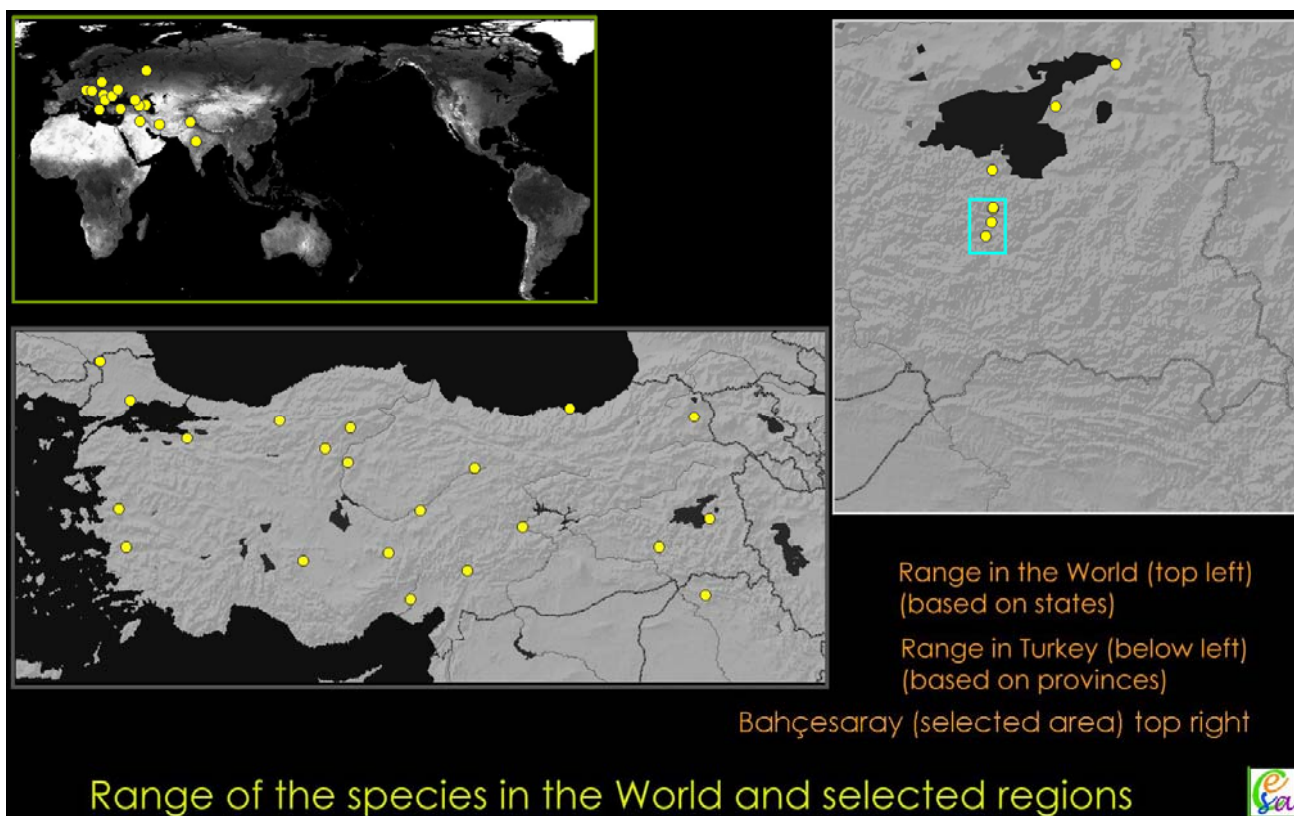
Map 5 - *Catarhoe permixtaria*Map 6 - *Chesistege korbi*

Map 7 - *Coenotephria ablutaria*Map 8 - *Crocallis (s.str.) loebeli*

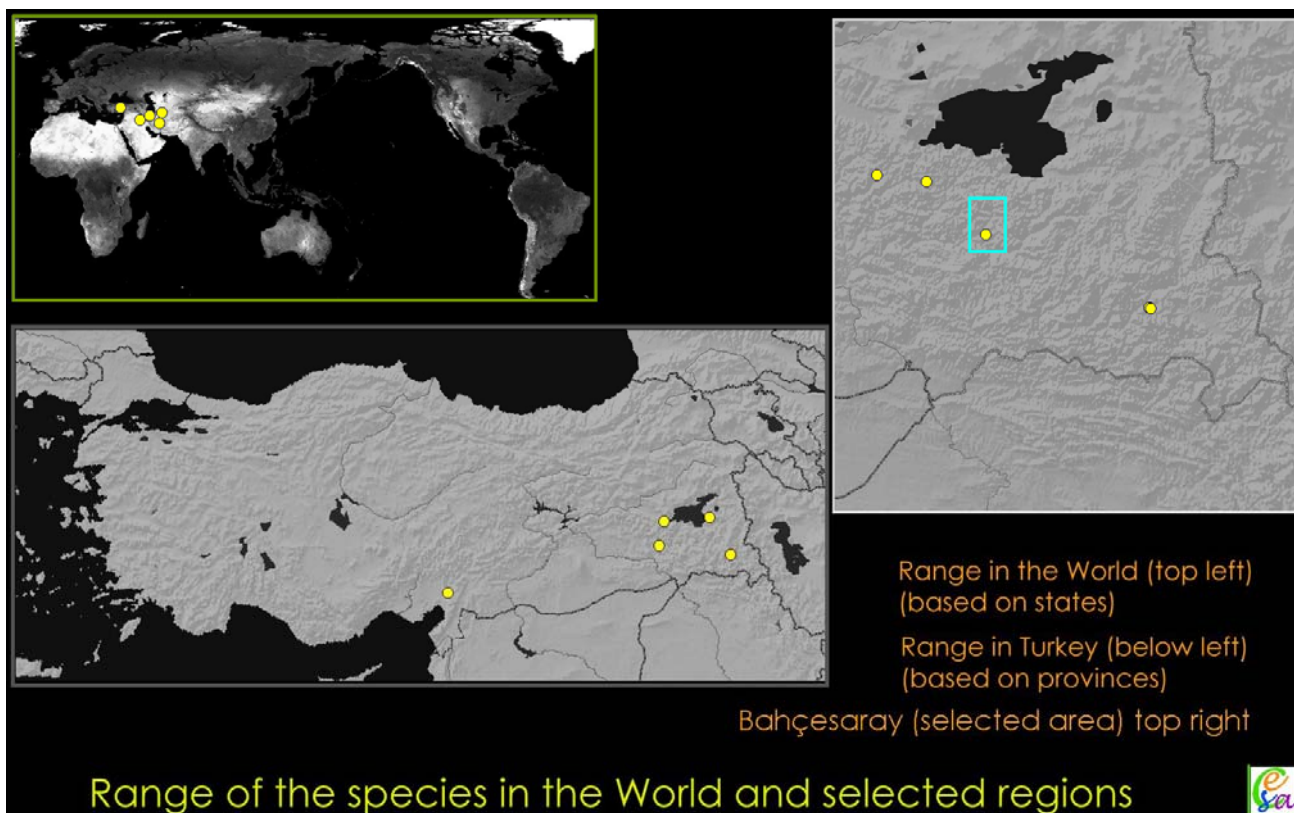
Map 9 - *Dasycorsa modesta*Map 10 - *Docirava mundulata*



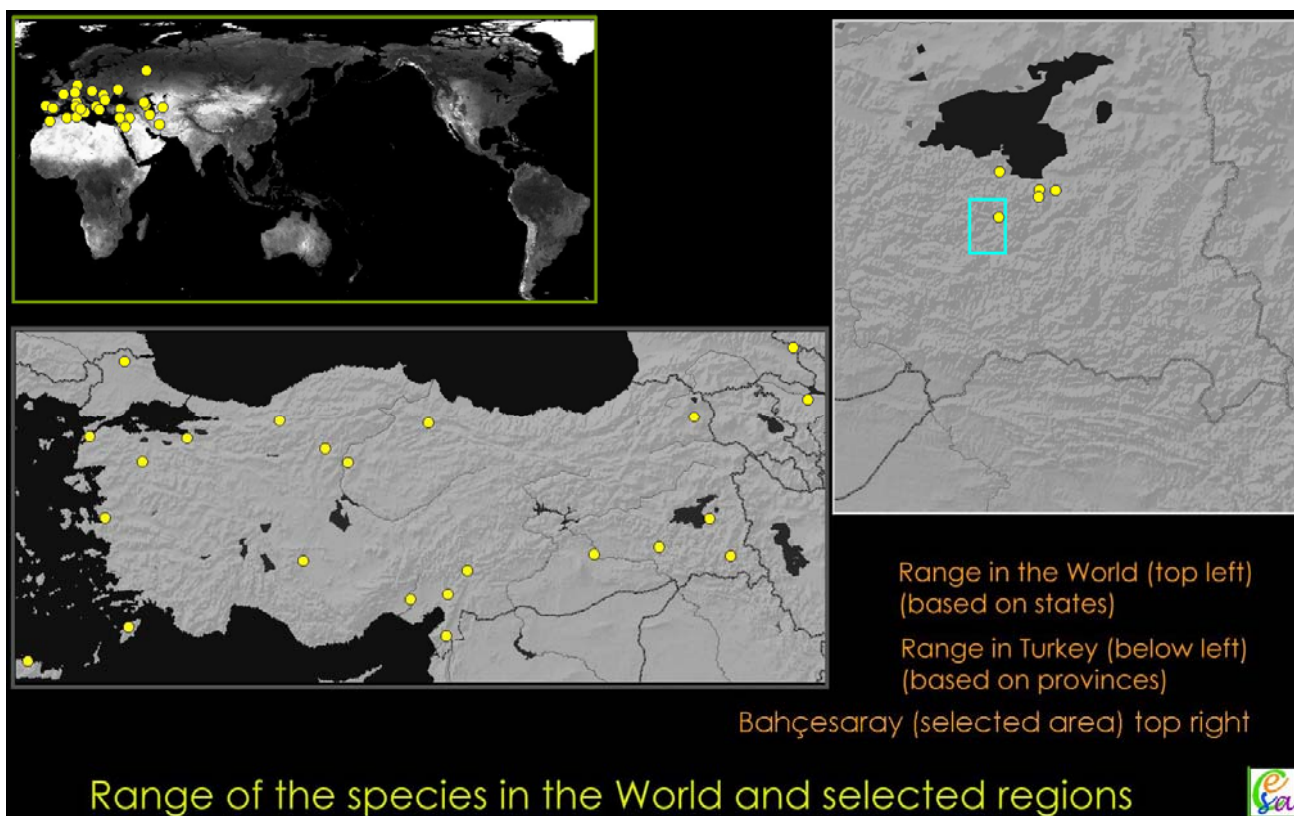
Map 11 - *Drepanopterula limaria*



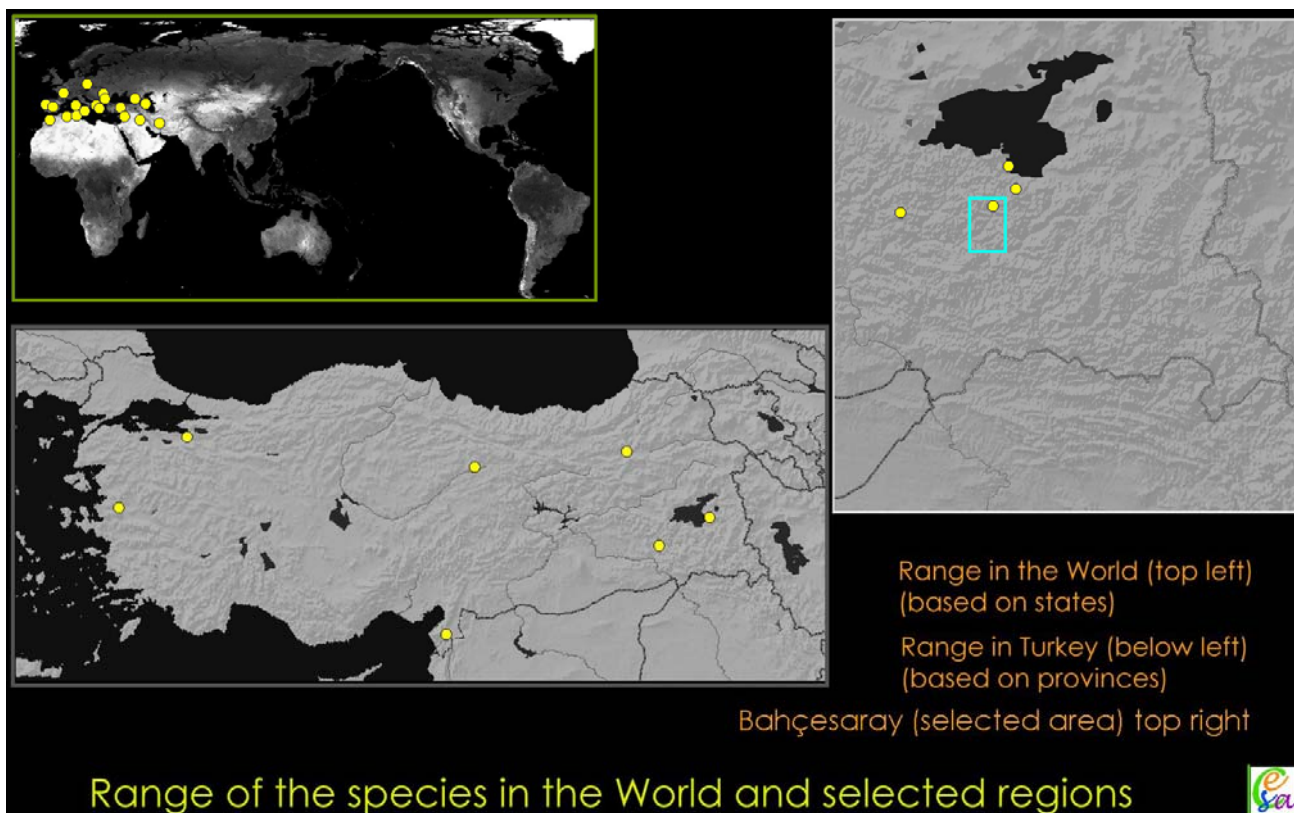
Map 12 - *Elicrinia cordiaria*



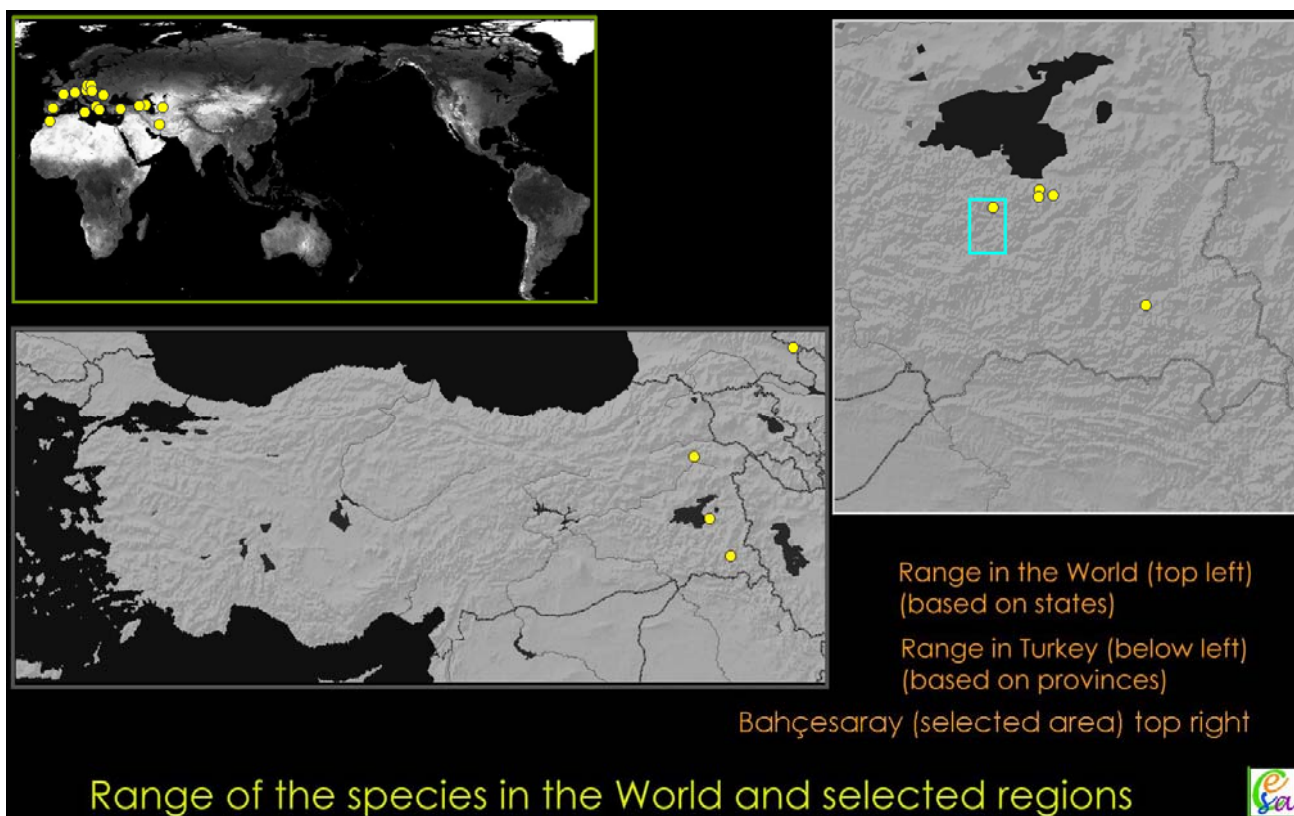
Map 13 - *Ennomos (Deuteronomos) fraxineti*



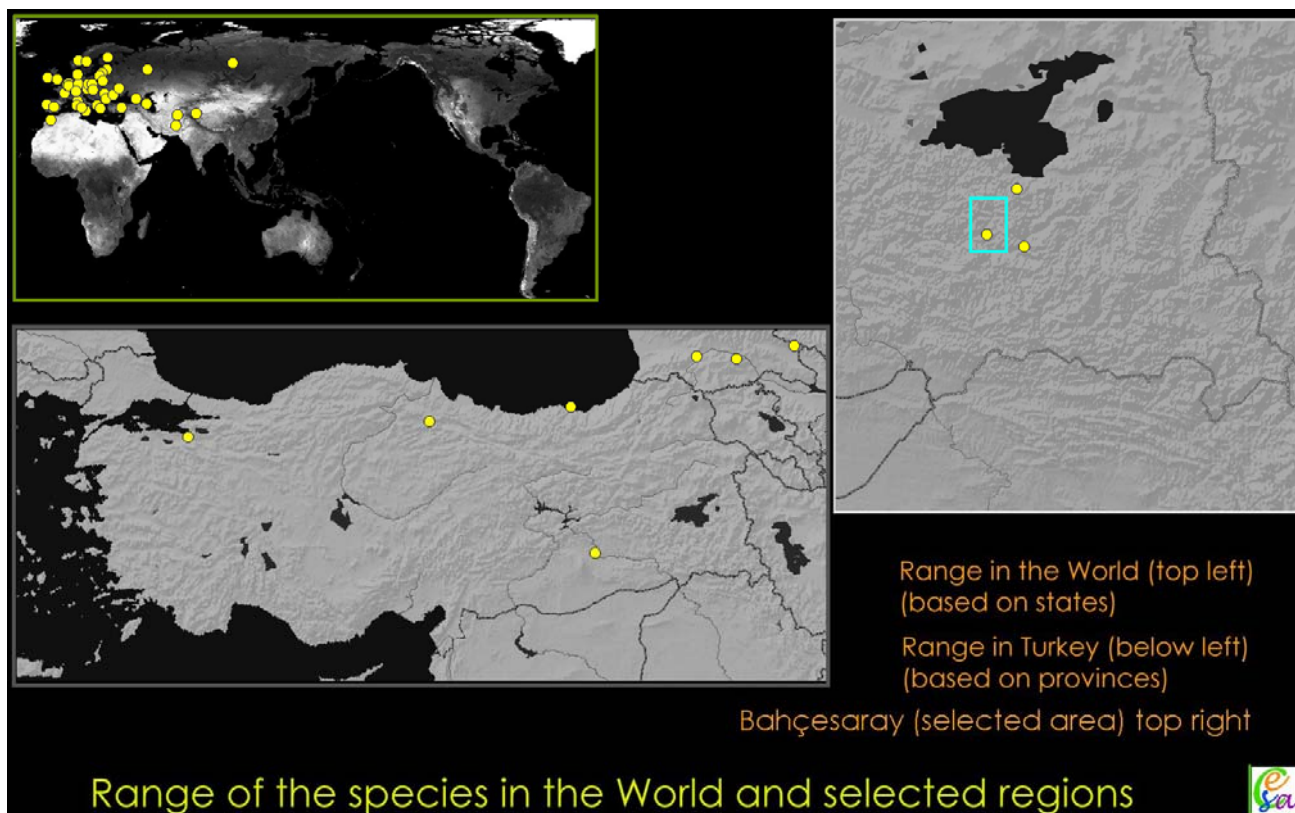
Map 14 - *Eupithecia breviculata*



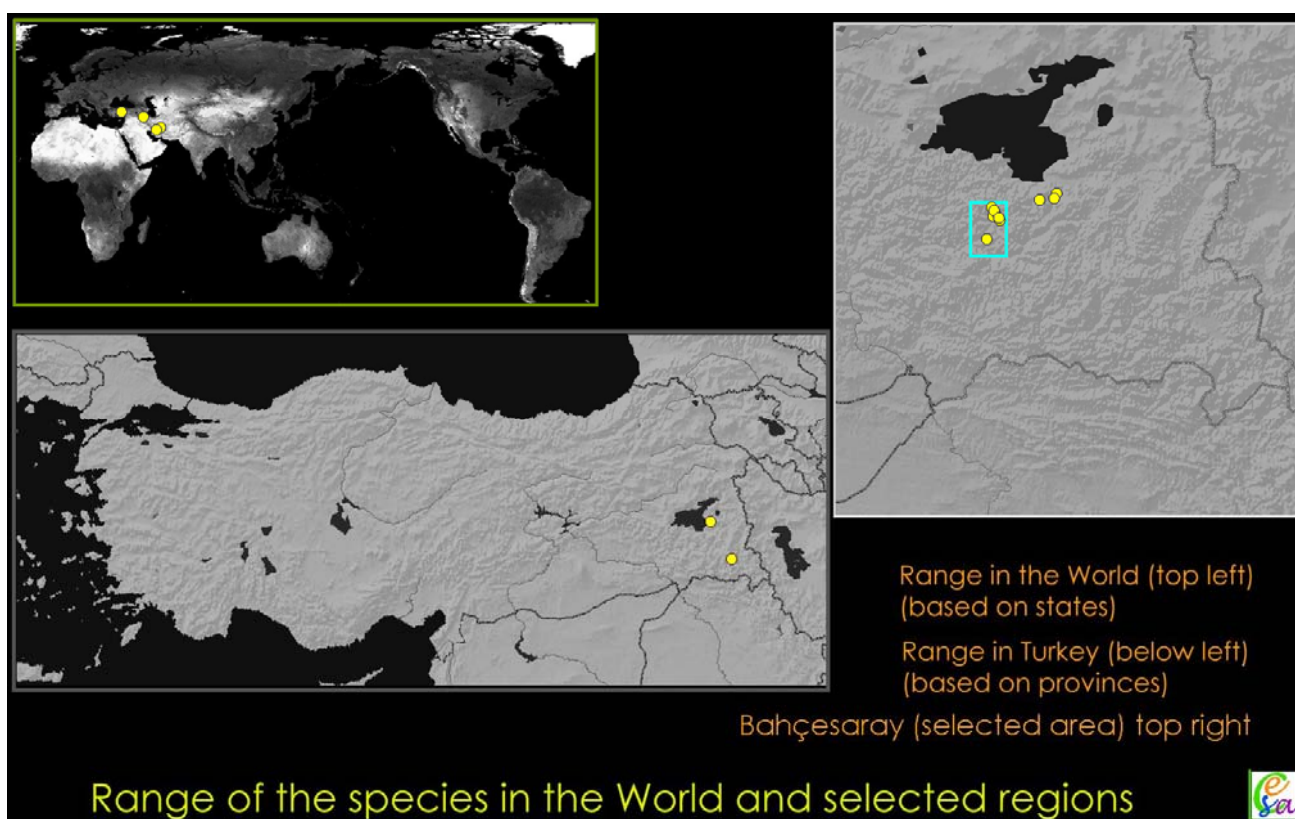
Map 15 - *Eupithecia gratiosata*



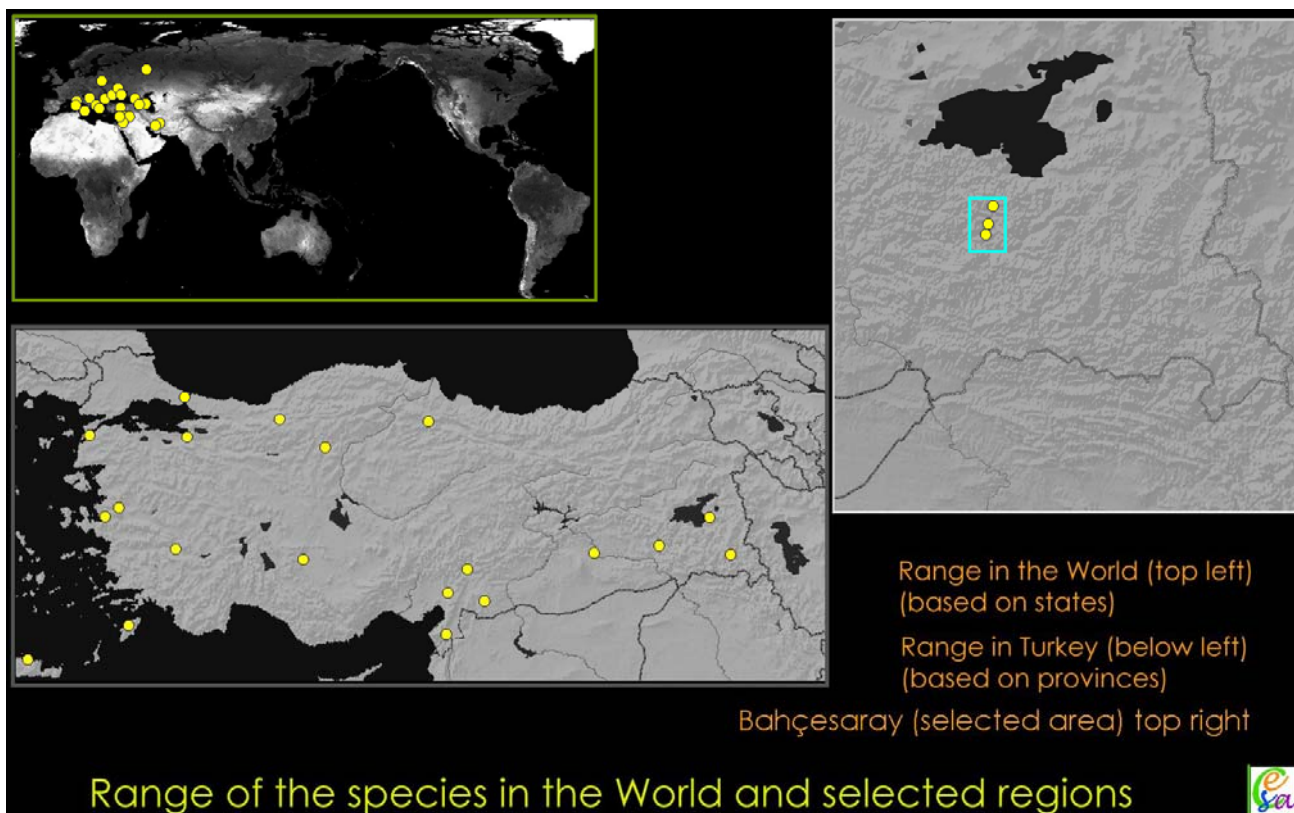
Map 16 - *Eupithecia gueneata*



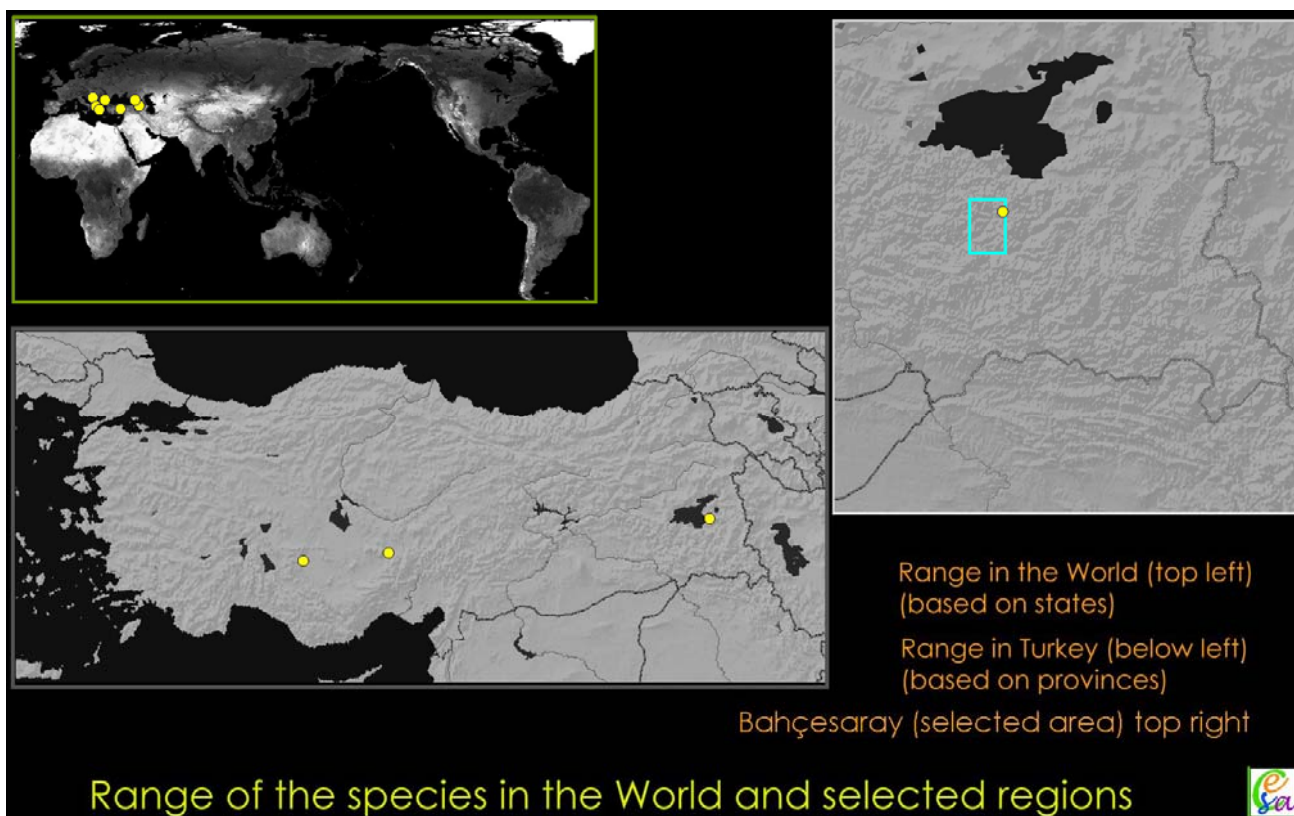
Map 17 - *Eupithecia venosata*



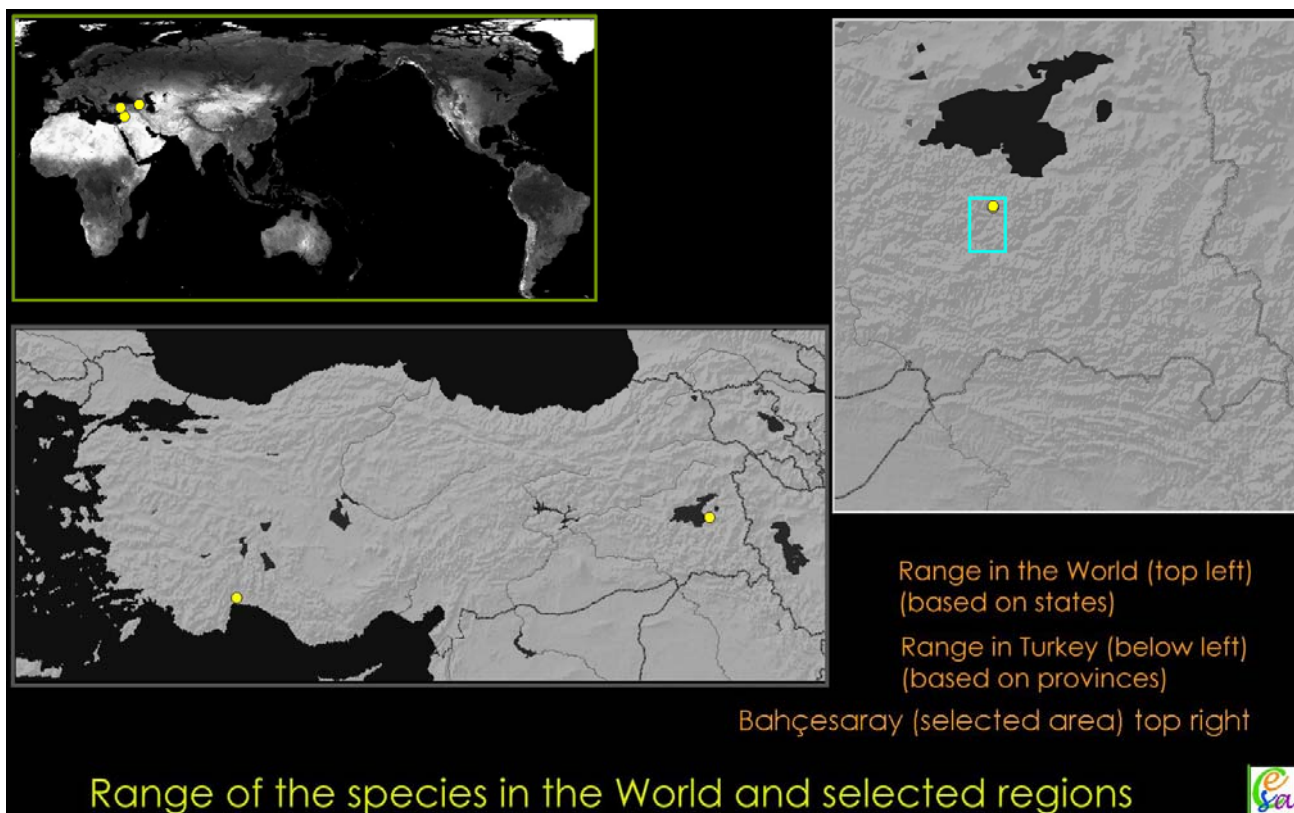
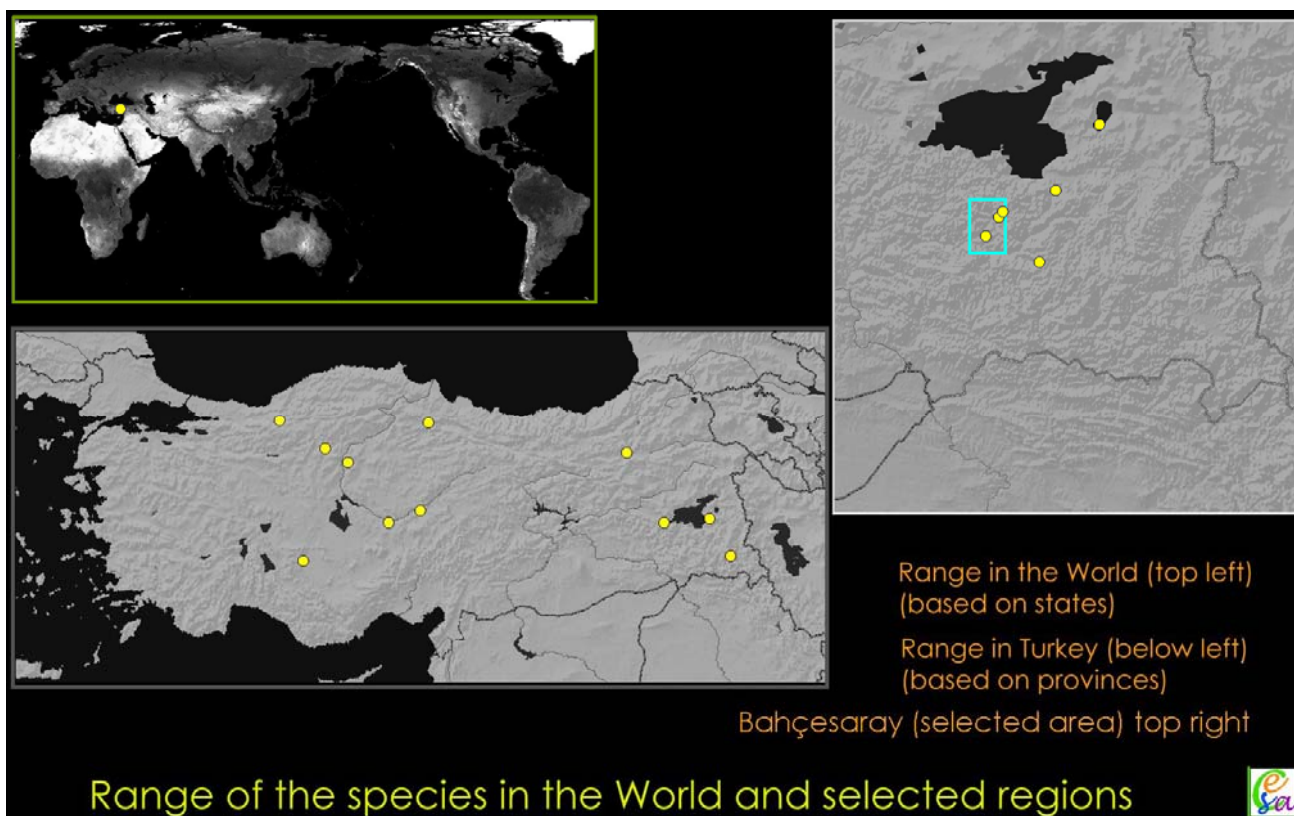
Map 18 - *Gnophos (Dicrognophos) gorgatus*

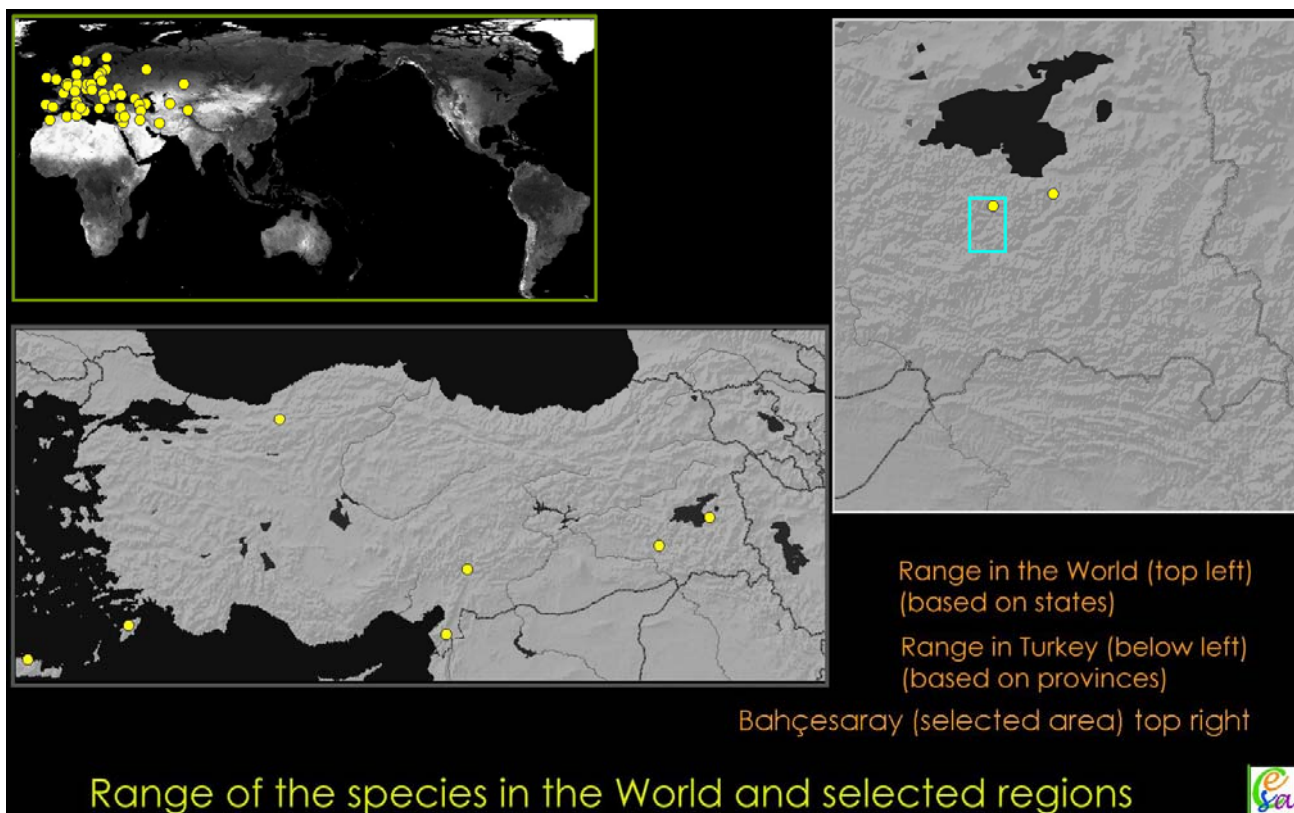
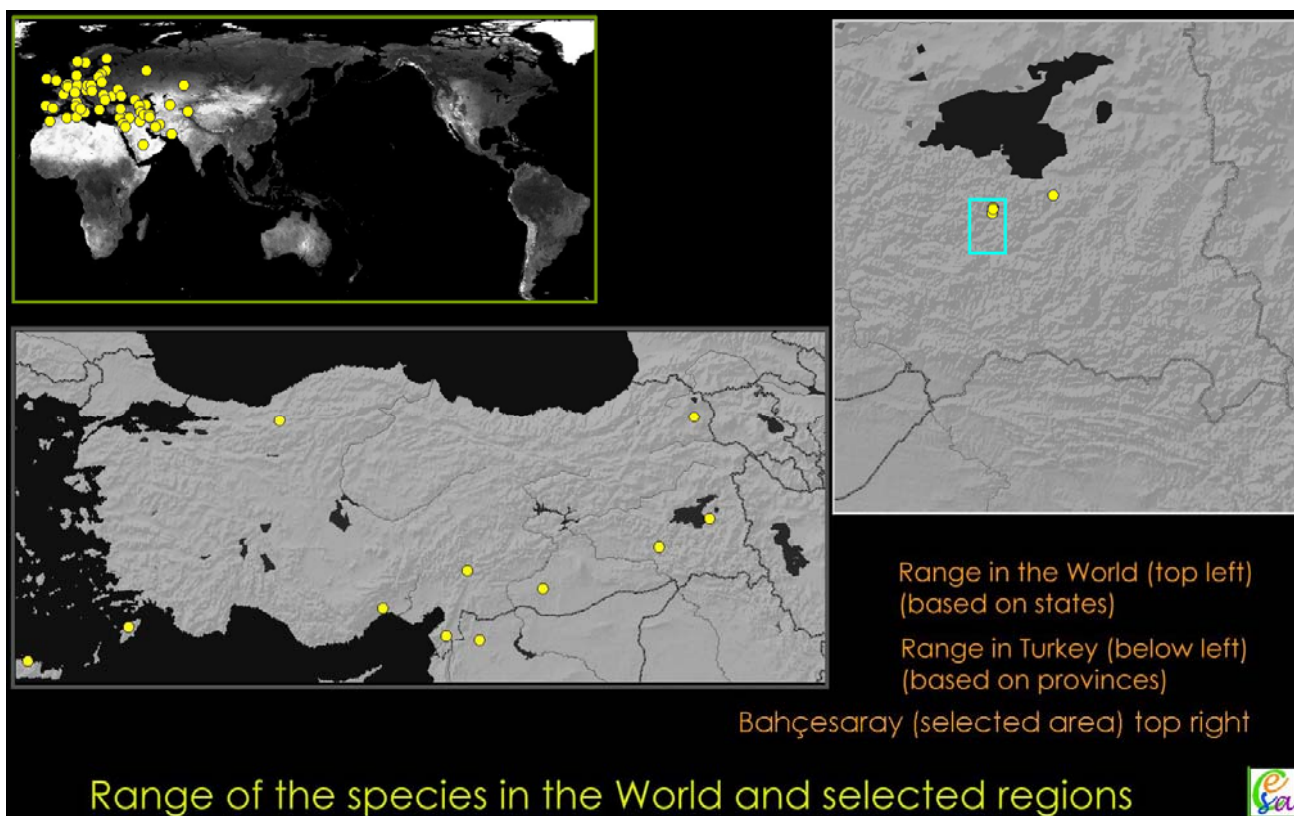


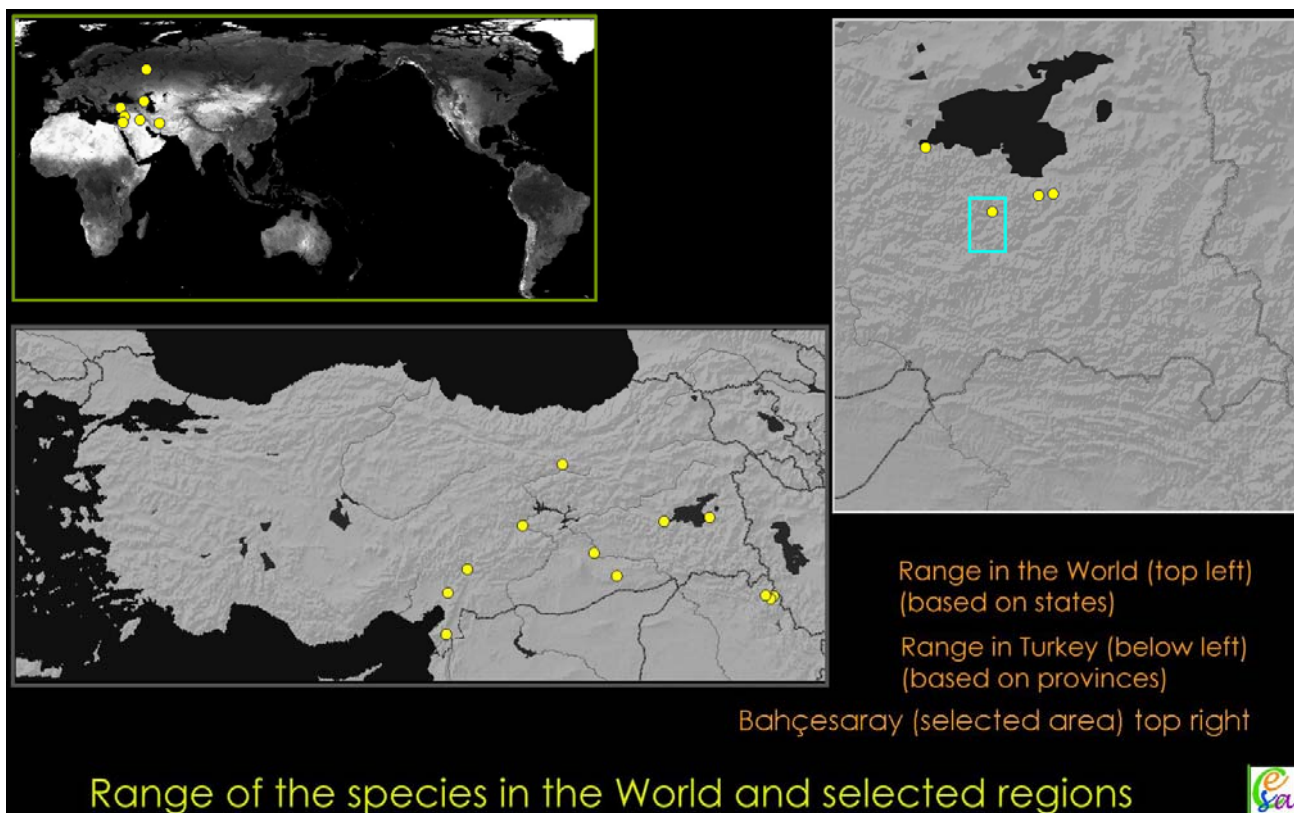
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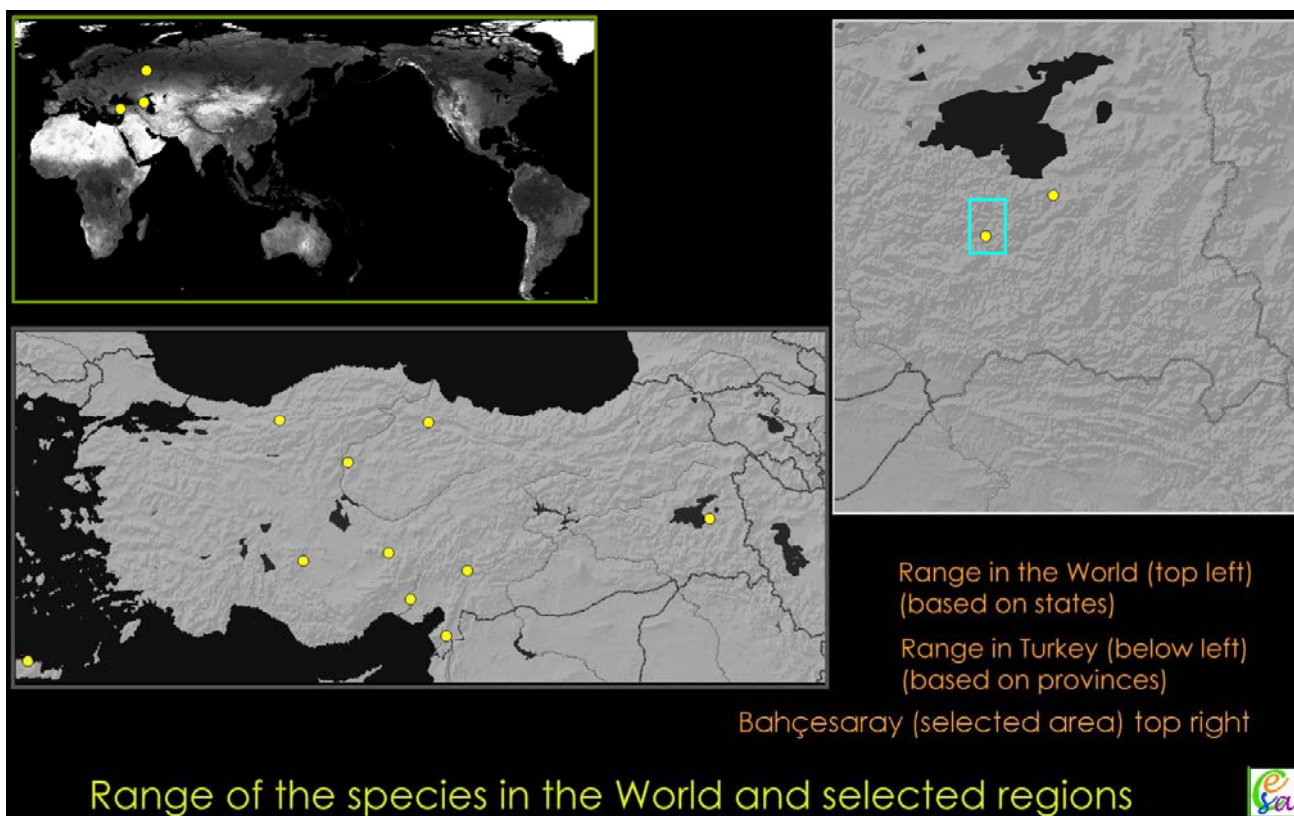
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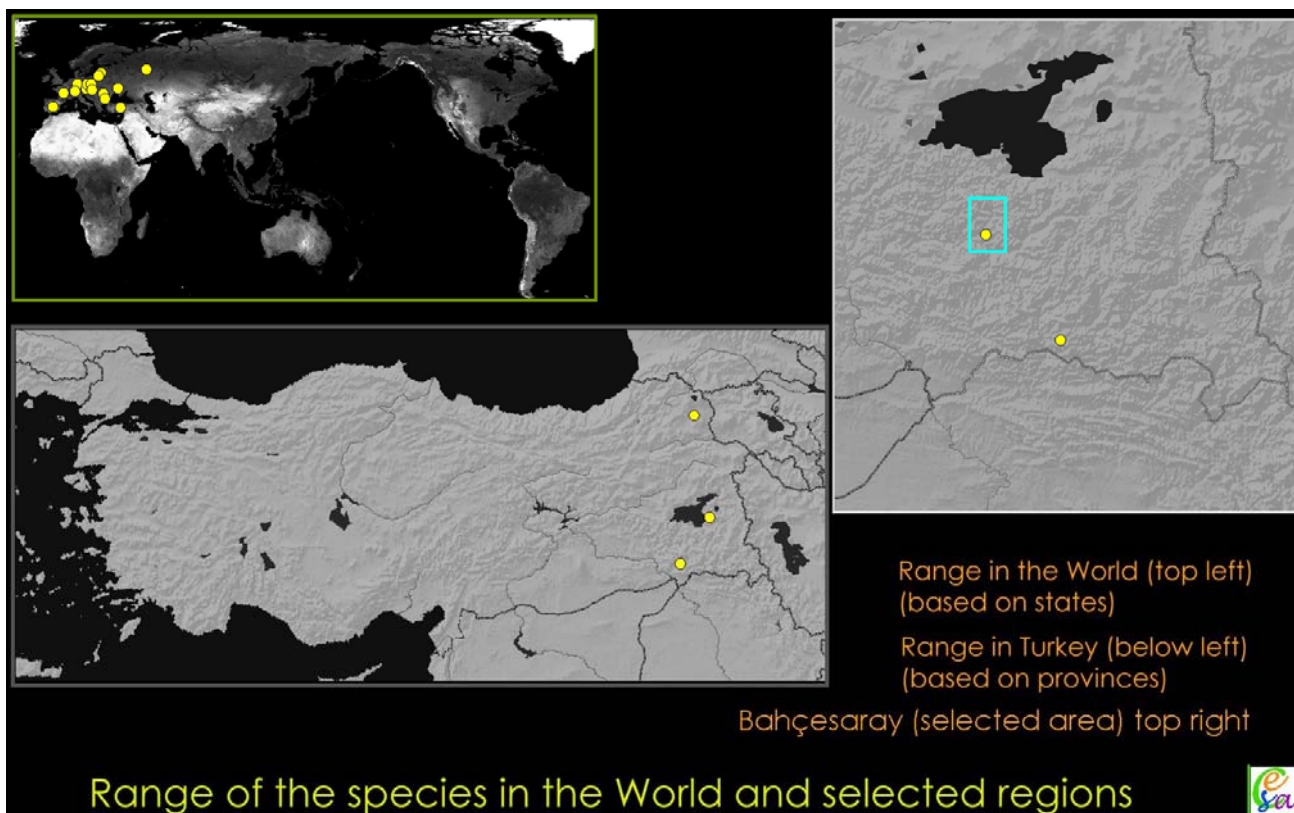
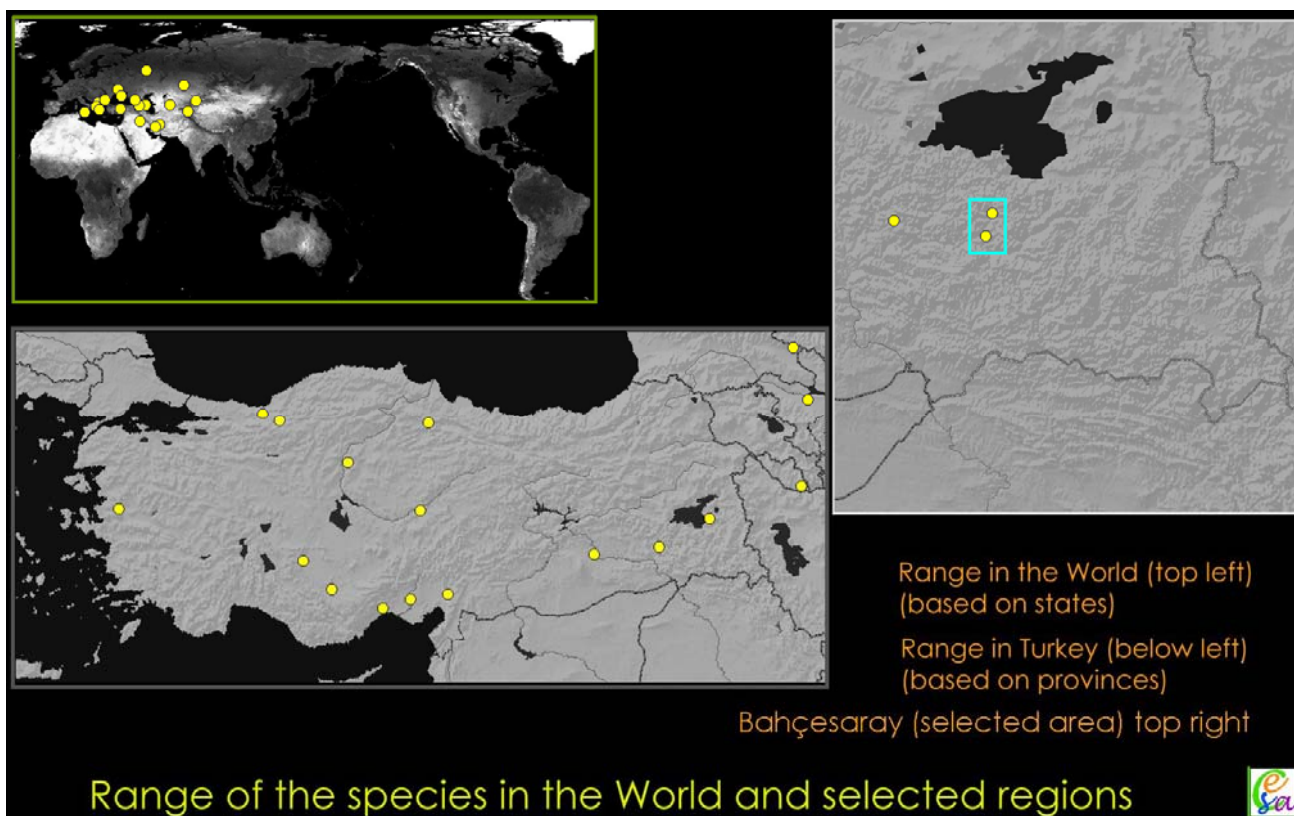
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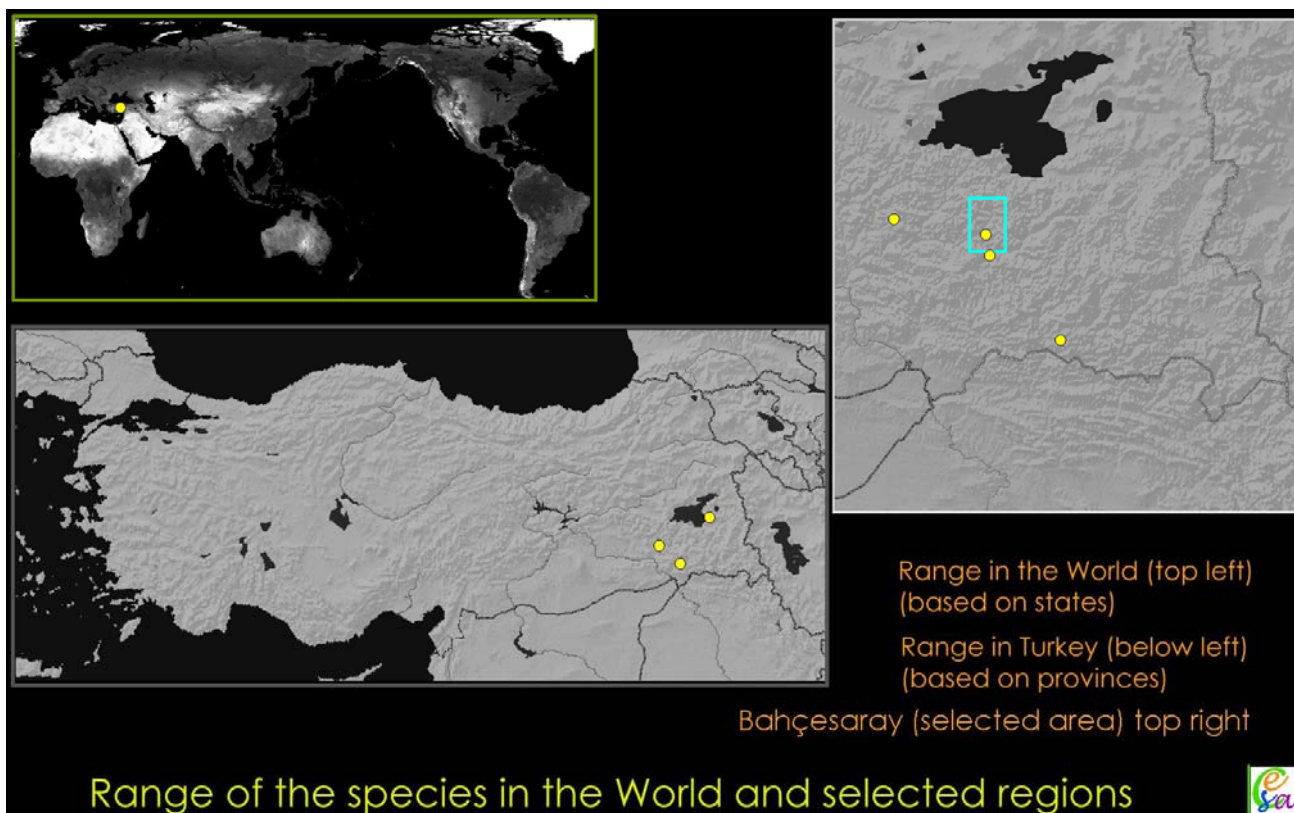
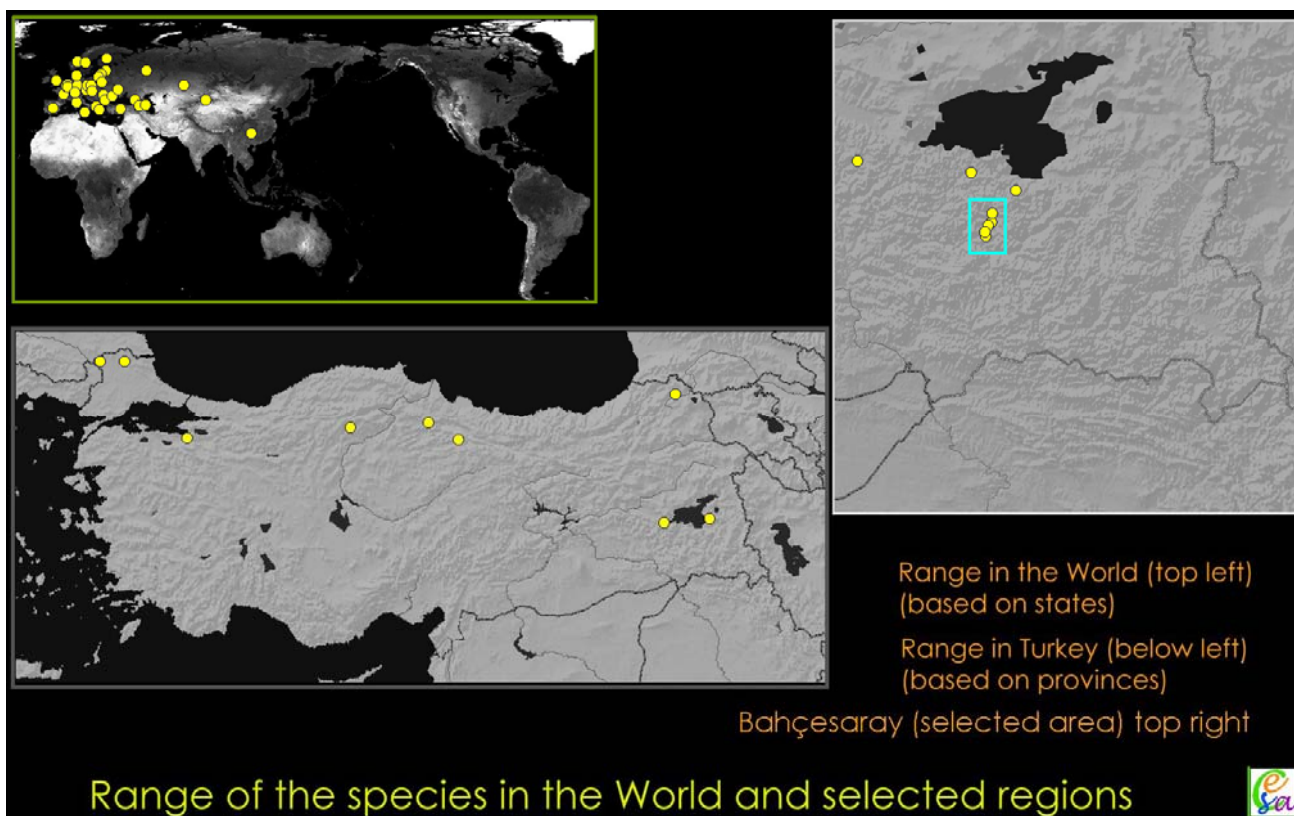


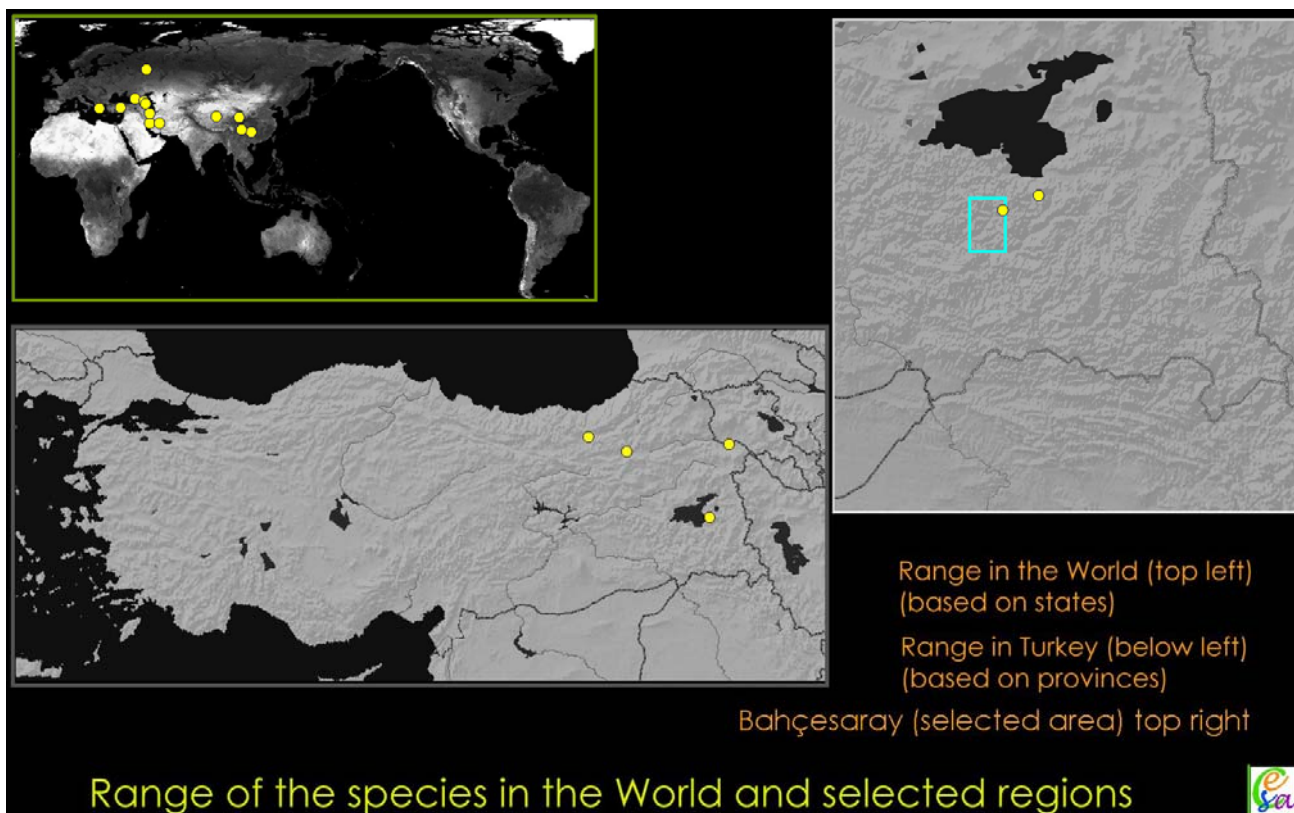
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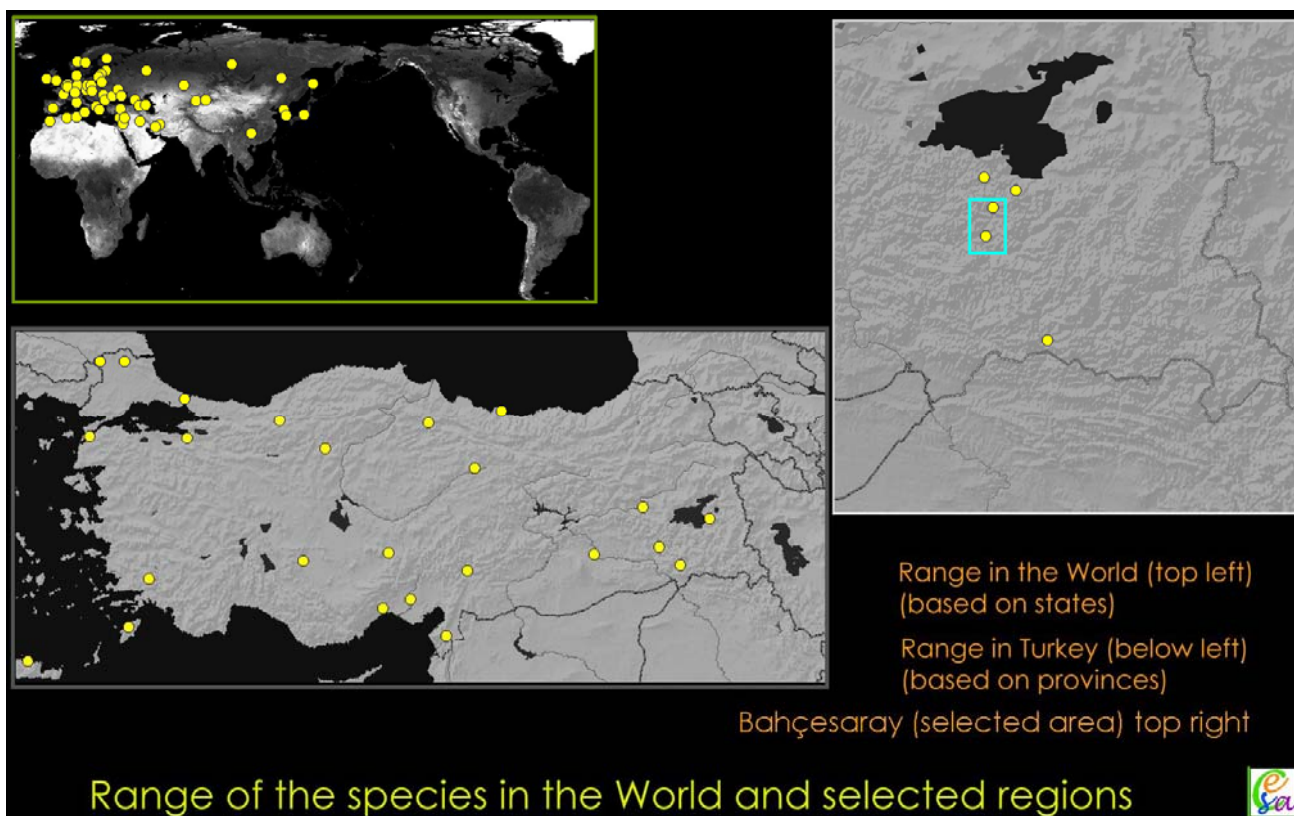
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